

COLMAN'S



ESTABLISHED 1848.

SAINT LOUIS, THURSDAY, JUNE 16, 1881.

No. 24, Vol. XXXIV.

Sorghum Department.

The Rural World is the only journal in the United States having a special department devoted to syrup and sugar making from sorghum.

The Cane Mill Controversy—Mr. Cushing's Vindication.

COL. COLMAN: My attention has been called to a publication in the *Rural World* of May 19th, in which letters written by me in January and February last are given to the public, and an attempted reply from G. L. Squier & Bro., is published in same paper of June 2d. In the Squier Bro. communication they very boldly state that the mills sent to me were not sugar mills and not intended for sugar, but were sorghum mills. They speak of them as "the old abandoned sorghum mills," and remark, "we do not now offer for sale a single mill such as Cushing sold." Now the facts are that G. L. Squier, knowing that I was the oldest machinery dealer here, and having a large trade with the leading merchants and planters in this section, came to me and stated they were making a large variety of sugar mills, made expressly for southern planters and southern cane; that the said sugar mills were very strong, and that I could sell them with perfect confidence of success; that the said mills were just what was wanted for southern cane, while mills made by other manufacturers were only intended for sorghum. They also represented that they had the best horse power ever made. On these representations I entered into a written contract with them to become their agent in New Orleans. In compliance with this contract they sent various kinds of what they asserted were sugar mills made expressly for southern cane. They also had printed in Buffalo a large book of 64 pages, which they sent to me in large numbers for distribution among southern planters and merchants. This book they called "American Sugar Manual." They had them printed with my name, as agent, and also inserted my card, showing that I was agent for other prominent manufacturers. A copy of this book is sent to you. They commenced this book with an introductory, showing the advantage of southern planters making sugar instead of raising cotton; and as they now have, by their publication, acknowledged that they sent me sorghum mills instead of sugar mills, it will be interesting to show up G. L. Squier & Bro., and their ways—which were crooked. The following extract I cut out of the book:

THE NILES MILL.
(From Blymyer Mfg Co.'s Catalogue)

No mills equal the Niles in construction, strength and finish. Of the character, work, and reputation of these mills it seems superfluous to say a word. The name suggests to planters more than we could say. Since 1833, a period of nearly 45 years, they have been the leading mills of the country.

Probably three-fourths of all the plantations of Louisiana have been supplied with the Niles sugar outfits. On many plantations the mills that are now the dependence for taking off the crops, were at work before the present occupants of the plantations were born.

In the original construction of these mills, the highest scientific knowledge and greatest mechanical skill and experience attainable, were called into requisition. These secured a correct proportion in all parts of the mill, so that every ounce of metal, whether in gear, or frame, or roll, or shaft, was made to do its appropriate work, and was subjected only to its appropriate strain.

The Niles mills were first introduced in 1836, and have ever since been the standard cane mill in Louisiana. After that had been in operation eighteen

years, under the closest observation, they were overhauled, and a new and improved set of patterns built. These patterns have now been in use twenty-six years, and are by far the most perfect and thoroughly tested and reliable of any in the country.

This work was completed under the direction of one of the most intelligent and skillful mechanical engineers of the time, who constructed the first mill for our predecessors in 1836, and in 1880 closed his successful career in our employ.

Of the Niles steam mills over 500 have been sold in Louisiana alone, and many of them have been in use thirty to forty years. In one year were sold 56 Niles mills, varying in size from 4-foot rolls to 6-foot rolls, the total weight of which mills was 2,700,000 pounds, or 1,335 tons. In Louisiana, where the Niles mill has been for forty years in competition with mills from the best foundries in the world, it has proven vastly superior to all of its rivals.

PLAQUEMINES, IBERVILLE, PARISH LA. April 10th, 1881.

BLYMYER MFG. CO., CINCINNATI, OHIO.

Dear Sirs.—Having received yours March 25th, requesting me to give you a statement of mill and engine purchased the year 1869 from the Niles foundry, cylinder stroke, 4 feet bore, 16 inch rollers, 5 feet long, 30 inches diameter. The mill and engine stand on iron bed plates. This engine and mill are still in my possession; had no repairs, except broke the suction by freeze, and the cost of a new one to be made. It has worked every year since in my possession. The capacity of this mill is, with 100 lbs. steam, about thirty or forty hds. of sugar in 24 hours. We run the engine at a rate of 60 to 70 revolutions per minute, and grind 12 hds. in about 12 to 14 hours. The mill stands well and will do all the work we call on her to do; are perfectly well pleased with it. Pumps ought to be so constructed with faucet as to let the water out of pumps and all the pipes when not in use. What would you propose building me a doctor engine that would supply two 42 inch diameter boilers, 30 feet long

(double flue) for cash? I will need one if the cane crop is not a total failure, which looks heavy towards that way. Yours respectfully,

MRS. PAULINE DUPUY.

Per N. R. DUPUY.

LAGONDA PLANTATION, P. O. PATERSONVILLE, ST. MARY'S PARISH, LA.

April 30th, 1881.

BLYMYER MFG. CO., CINCINNATI, OHIO.

Gents.—The 5-foot by 30-inch three roll sugar mill, we purchased of you in 1878, has since that time crushed the cane from three crops, and has given great satisfaction.

The power we use is a Niles 10 inch 4 foot stroke engine, and 40 strokes of the engine gives about two revolutions of the mill. This is a more powerful leverance on the crushing parts than any of the large mills in this parish are subjected to, but we have seen no signs whatever of any weakness in any parts of the mill, and do not expect any trouble.

We set the bagasse roll up so that the thinest case knife will not pass between, and carry a feed of cane about 1 foot deep and 4½ feet wide. When cane is delivered at sugar house rapidly enough, there is no difficulty in our rolling to make 25,000 to 30,000 lbs. sugar in 24 hours, from cane which makes 100 lbs. sugar per ton. The Niles mills have always been the favorite mills with most of the large planters of this State, and we believe the proportions of the latest mill made by Niles, are as near correct to get the greatest strength where it is needed as any mill ever made. There are several mills in Louisiana from same patterns as ours, and we have never heard of any breakages in the heavy parts with any of them, though ours has perhaps been more severely tried than any of them because our gearing is arranged to give great pressure. We got on last crop about 126 lbs. sugar per ton of cane, but had the assistance of an auxiliary two roll mill which gave 10 per cent. additional juice, and our belief, after a great many years experience is, that an extra two roll mill is always necessary and profitable. Our belief is that no sugar planter in Louisiana gets better results than we do with our present arrangement, though there are mills in use which have cost considerably more than ours.

STEELE & CLARKE.

those embodying the best and latest improvements are well adapted to the wants of the southern cane grower, being thoroughly stout, efficient and reliable. And as they are made of various sizes and prices, from \$50 upwards, they are adapted to the means of the smallest planter, and are really opening a new era in cane growing, and a new source of prosperity to the south. They seem to have been perfected just at the right time to supply the demand created by the changed condition of affairs at the south. And the southern planter has this great advantage, that he can now buy a mill adapted to his wants, perfected through years of trial and improvement; and he is not obliged to go through a long and expensive series of experiments to find something to meet the demands of his situation, because the sorghum grower has already done that for him. Yet there are still in the market many of the crude, imperfect, old style sorghum mills. Many of the earlier manufacturers of sorghum mills finding themselves outstripped by the later inventions of more enterprising men, and driven from the sorghum regions, are flooding the south with their old style of imperfect mills, hoping to work them off where their imperfections are unknown. Some or them are very persistent in trying to persuade others, and really seem to believe themselves, that because they made mills early in the sorghum business, their old style goods, which were ten years ago perhaps as good as any other made, are still equal to those that have been improved and perfected through all the experience and knowledge that has been gained since then; and they display their ancient premiums and testimonials as evidence of the present comparative merits of their mills, seeming to think that all progress and improvement ended with their old time devices. It, therefore, behoves the planter to use his own judgment, and the utmost care and caution, in the selection of his own mill, or he will have one of those old style mills foisted on him, to the disappointment to all his hopes.

MILLS.

The introduction of sorghum into the middle and western States some fifteen years ago, and its continued cultivation since, created a demand for a class of small mills before unknown. This demand stimulated inventors and manufacturers to produce the class of mills needed by men who cultivate but small patches, or a few acres of cane. These mills were at first crude, weak and imperfect; but being constantly improved as their imperfections were developed, they have been finally brought to a great degree of perfection, and

would make 5 hds. a day. When they pay the \$12,000 damages they will conclude the Pierce mill has been a Leviathan one to them. In Squier & Bro.'s letter they state they did not know what became of the Pierce mill, but that now they find Mr. Dickson has used it for ten years. Their lawyer, Mr. Bryan, will inform them that he knew all about the mill from my having informed him of the fact that the Pierce mill remained in my warehouse for several years. It was then made over with parts of another Squier mill which had been rejected, and this new made mill with alterations by Shakespeare's foundry was then sold to Mr. Dickson. The rubber springs were taken out, and Mr. Dickson ran the mill with a small engine I sold him.

On page 18 of Squier's book, they have an article on the great superiority of their mill for southern cane, and assert that they had been recently introduced and thoroughly tested in southern cane regions.

On page 19 they declare the Sampson Horse Power the strongest ever made, yet every one of the numerous powers sold by Cushing, prove defective. The Leviathan mill is described on page 31 as the mill that should by all means be ordered by every one who intends to use steam power. They declare such a mill (the Leviathan) will last a lifetime and its capacity will be equal to any growth and increase of business desired. Now compare the above assertion and guarantee of Squier & Bro.'s when they sold their mills as the best kind of southern sugar planters, and their present declarations that they sent Cushing old sorghum mills.

Having shown up the swindling means taken by Squier & Bro. in selling old sorghum mills to southern planters for southern cane, now let us see what Milton Burns has to say. Here is his letter:

COVINGTON, LA., } April 19th, 1881.

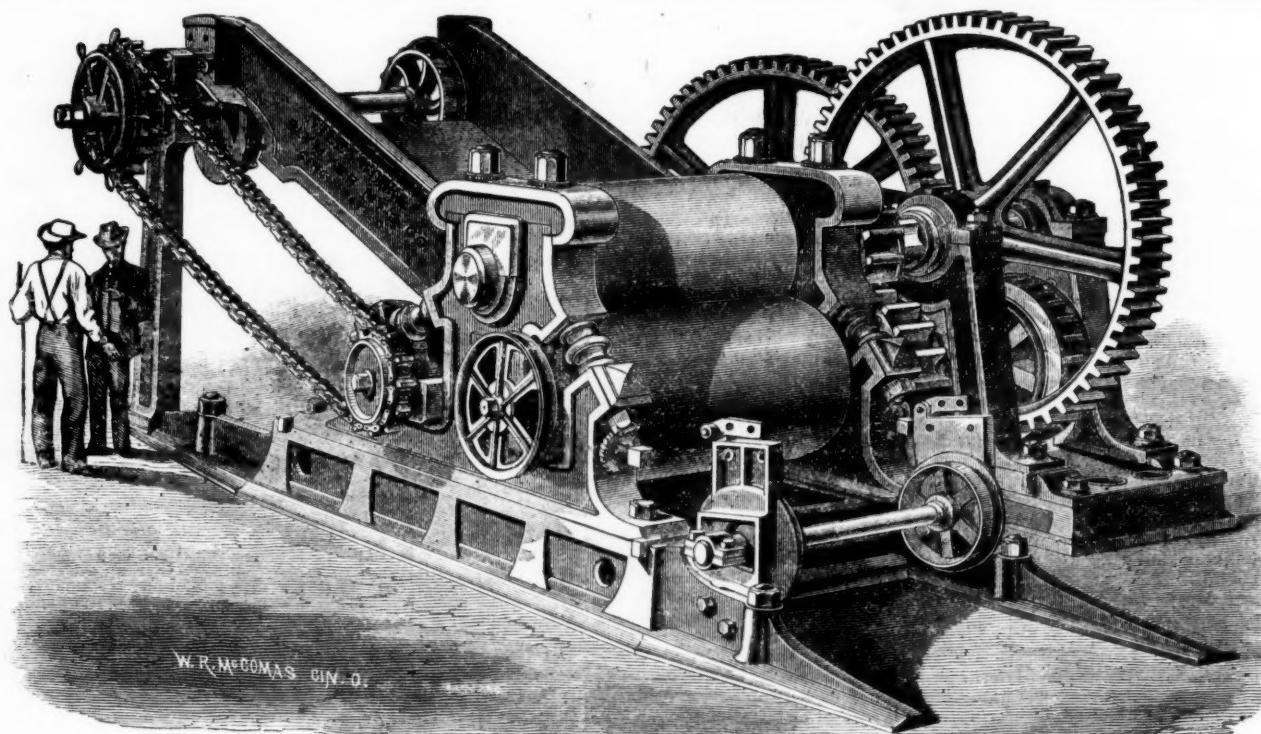
Mr. I. A. HEDGES: Yours of the 15th inst. received. I have been using a sugar mill, made in Buffalo, N. Y., about five years. It had rubber springs, they only lasted one year; under heavy pressure they mash together. My experience is that rubber springs are useless. A mill should be strong enough to do its work without any give to it under heavy pressure. Rubber springs were in our mill to save the mill from breakage under pressure. It is my opinion that set-screws are the best when well put in. I know of a Buffalo mill where the set-screws gave way; the threads gave way in the cast iron. Some parties here have the Buffalo mill, and when they have taken out the springs the mill did good work. My mill broke all to pieces last year; a piece of wood fell in it while I was grinding cane (it was the croucher). I ran it with a steam engine. I never could get its full capacity for fear of its breakage. MILTON BURNS.

The above letter, it will be seen, is of recent date. It is addressed to Mr. Hedges, and is in reply to letter from Hedges in regard to rigid mills. Although Mr. Burns was not asked if his Squier mill had failed, yet he volunteers the information, and thus endorses what he had previously stated to Cushing. I have now before me the original letter, which is in the hand writing of Burns, and written by him without any dictation. The letter to West was not written by Burns, and it is evident he signed it to please West as he states. Mr. West grumbled because he had made public the defects of the Squier mill, and it was an injury to West's business.

Squier & Bro. assert that the suit against them by Pierce is yet pending. Now the facts of the case are these: O. A. Pierce brought suit against me and Squier & Bro. The court decided that in selling the mill, I was acting as agent for Squier & Bro., and the case was dismissed against me. When the suit was commenced, there was a large lot of Squier & Bro.'s machinery in my hands which was attached. Squier & Bro. employed Judge E. T. Fellows to act as their attorney, and paid him \$500 retaining fee. Squier came to New Orleans, and gave his own bond for the release of the machinery. Squier had testimony of Stevens' taken. After Judge Fellows removed from New Orleans, Squier & Bro. employed Mr. Bryan. He made every effort on behalf of Squier. He could have had a jury of merchants had he desired, but both parties consented to have Judge Righton decide the case. The trial was a long one and a fair one, and the testimony was so very decided against Squier & Bro., after this public acknowledgement that they swindled southern planters by selling them old sorghum mills as sugar mills?

If Squier & Bro. had been honest men they would not have palmed off on the poor southern planters the old sorghum mills for sugar places. This trickery of theirs has recoiled upon them, and after a fair trial they have been condemned by our Supreme Court to pay O. A. Pierce heavy damages amounting, with cost of court and interest, to over \$12,000. This suit was for damages caused by one of their steam mills breaking down, causing the loss of the sugar crop, and compelling Mr. Pierce to go into bankruptcy. Had Squier & Bro. stated what they now state, that the mills sent Cushing were old sorghum mills, not intended for sugar, Mr. Pierce would never have bought one; but they guaranteed to Pierce that the mill was for sugar and

Continued on 4th page.



W. R. McCORMACK, CINCINNATI.

The above extract from the book sent by Squier Bro., to Cushing, certainly

The Grange.

[The Rural World welcomes to the Grange Department communications from Missouri and all parts of the Mississippi Valley from members of the order. Brief notes of what is going on in the order, or any matters pertaining to it will be cheerfully published.]

Official Grange Paper.

At a meeting of the executive committee of the Missouri State Grange, held in the city of St. Louis on the 3d day of December, 1880—all the members being present—it was agreed to accept the proposition, submitted by Col. Norman J. Colman, for publishing the official grange communications in the RURAL WORLD during the two ensuing years.

A. M. COFFEY,
Secretary of Executive Committee,
Knob Noster, Mo., December 6, 1880.

Rolla State Grange Resolutions.

The Missouri State Grange, at its late session at Rolla, unanimously adopted the following:

Whereas, COLMAN'S RURAL WORLD was one of the first papers in Missouri to espouse the grange cause, and to urge the farmers of the State to organize themselves into granges; and

Whereas, It has ever been the faithful, earnest and consistent friend of the grange and of the agricultural classes of the State, zealously laboring to advance every agricultural interest and to elevate the profession of agriculture to a higher standard; therefore, be it

Resolved, That the Missouri State Grange cordially indorse COLMAN'S RURAL WORLD and recommends it to the support of the Patrons of Husbandry of the State of Missouri.

The Grange Defined.

There exists now, and did at the time the grange was organized, immense combinations, which, by a system of co-operation, are enabled to control the price paid for and sold for, and manipulate every minutia of trade, transportation and distribution of the world's products with perfect ease and harmony.

These are great examples of co-operation, to which no one would object if they did not digress from their own legitimate spheres of action. But all experience proves that where the power of co-operation is applied by one great class, all other classes in any way connected with them must apply the same power, or else the natural laws are subverted into personal uses.

The farmer, as a class, is connected with all other classes, while all classes but the farmers are applying this great power of co-operation, which as a natural sequence operates to their gain and the detriment of the farmer.

These combinations are communes, dividing the profits on the farmer's labor among themselves as may suit their interests of fancy. This is co-operation used for oppression, but nevertheless proves that it possesses a power when applied to any enterprise. The founders of the grange were fully aware that the great natural law of "demand and supply" was crippled by the co-operation of boards of trade and corporate associations, and wisely determined to make the grange the means of placing the producer on an equal footing with those who were controlling both consumption and production, by offering them an organization through which as perfect and complete a system of co-operation may be operated as has been by corporations and stock companies, boards of trade and exchanges, for many years.

The grange, therefore, is a co-operative as well as a social institution. It could not be less and accomplish anything of importance. No social, educational, or business enterprise can be successfully prosecuted without co-operation. And aside from the grange, to-day the farmers of America have absolutely no organization or means of applying the power of co-operation.

The benefits which have been and are being obtained in this way is no proportion of the zeal and fidelity to the principles as actually shown by our members. But enough has been accomplished that if the grange was to be instantly exterminated, the farmers of the country would be amply repaid for all time and labor in the work.

The grange has another important feature—the educational—about which I will say something in my next.—III. Grange News.

Dr. Talmage on Monopoly.

[From the New York Herald, May 16, 1881.]

After the congregation in the Brooklyn Tabernacle, yesterday morning, had sung, "My Country, 'tis of Thee," Dr. Talmage announced his text from Isaiah xxii, 41: "Thy land shall be married." He said: I propose to name some of the suitors who are claiming the hand of this republic. In the first place there is a greedy, all-grasping monster who comes in as a suitor seeking the hand of this Republic, and that monster is monopoly. His sceptre is made out of the iron of the rail track and the iron of telegraphy. He does everything for his own advantage and for the robbery of the people. Things have gone on from bad to worse, until in the three Legislatures of New York, New Jersey and Pennsylvania for the most part monopoly decides everything. If monopoly favors a law, it is passed; if monopoly opposes a law, it is rejected. Monopoly stands in the railroad depot putting into his pockets in one year \$260,000,000 in excess of all reasonable charges for service. Monopoly holds in its one hand the steam power of locomotion, and in the other, the electricity of swift communication. Monopoly has the Republican party in one pocket and the Democrat party in the other pocket. Monopoly decides nominations and elections—city elections, State elections, national elections. With bribes it takes the votes of legislators, giving them free passes, giving appointments to needy relatives of lucrative positions, employing them as attorneys if they are lawyers, carrying their goods a large percentage less if they are merchants, and if it finds a case very stubborn as well as very important, puts down before him the hard cash of bribe.

But monopoly is not so easily caught, and now and captured and arrested as caught, during the term of Mr. Buchanan, the Legislative Committee in one of our States explored and exposed the manner in which a certain railway company

had obtained a donation of public land. It was found out that thirteen of the senators of that State received \$175,000 among them, sixty members of the Legislature of that State received between \$5,000 and \$10,000 each, the governor of that State received \$50,000, his clerk received \$5,000, the lieutenant-governor received \$10,000, all the clerks of the Legislature received \$5,000 each, while \$50,000 was divided among the lobby agents. That thing on a larger or smaller scale is all the time going on in some of the States of the Union, but it is not so blundering as it used to be, and therefore not so easily exposed or arrested. I tell you that the overshadowing curse of the United States to-day is monopoly. It puts its hand on every bushel of wheat upon every sack of salt, upon every ton of coal, and every man, woman and child in the United States feels the touch of that moneyed despotism. I rejoice that in twenty-four states of the Union already anti-monopoly leagues have been established. God speed them in the work of liberation! I wish that this question might be the question of the next presidential election, for between this and that time we can compel the political parties to recognize it in their platforms. I have nothing to say against capitalists. A man has a right to make all the money he can honestly. I have nothing to say against corporations as such. Without them no great enterprise would be possible; but what I do say is that the same principles are to be applied to the poorest man and the plainest laborer. What is wrong for me is wrong for the Vanderbilts and the Gould and the elevated railway companies of New York and Brooklyn. Monopoly in England has ground hundreds of thousands of her best people into semi-starvation, and in Ireland has driven multitudinous tenants almost to madness, and in the United States proposes to take the wealth of fifty or sixty millions of people and put it in a few silken wallets. Monopoly, brazen faced, iron fingered, vulture hearted monopoly, proposes his hand, offers his hand to this republic. Let the millions of the people—north, south, east and west—forbid the bans of that marriage, forbid them at the ballot box, forbid them by the overwhelming sentiment of an outraged nation, forbid them by the protest of the church of God, forbid them by prayer to high heaven, that Herod shall not have this Abigail.

Hall of Worthy Grange, No. 99, P. of H. May 23rd 1881.

Whereas it has pleased the Almighty God to remove from our midst Brother J. L. Smith, who was a patron of husbandry and a veteran of the Mexican war. Resolved, that we deeply deplore the death of brother Smith. Worthy Grange No. 99, has lost a good member and society a good citizen. Resolved, that the family of deceased have the sympathy of this Grange, and that a copy of these resolutions be spread upon the minutes of the Grange, and a copy be sent to the family, and also be sent to the grange papers for publication.

Resolved, that the charter be draped in mourning, and the members of Worthy Grange, No. 99, wear the usual badge for thirty days.

ABRAHAM MEFF,
R. E. RICHART.
W. R. JAMES.

The Poultry Yard.

Eggs as Food.

Eggs are another article of cheap and nutritious food which we do not find on our tables in the quantity economy demands. They are very convenient to take to market, and this is the disposition which too many farmers make of them.

These are great examples of co-operation,

to which no one would object if they did not digress from their own legitimate spheres of action. But all ex-

perience proves that where the power of co-operation is applied by one great

class, all other classes in any way con-

nected with them must apply the same

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The farmer, as a class, is connected with all other classes, while all classes but the farmers are applying this great

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Horticultural.

Edited by George Husmann, Professor of Pomology and Forestry, Columbia, Mo. All communications for this department should be addressed to him as above.

THE PERIODICAL CICADA.

Read before the "Social and Scientific Club" of Kirkwood, Mo., June 3d, 1881, by Mary E. MURFIELD.

The so-called 17-year or 13-year locust, more correctly the periodical cicada (*Cicada septendecim* or *tredecim*), with whose notes our forests are now resounding, is a native American, and owing to peculiarities of constitution and habit there is small probability of its ever crossing either ocean in search of "fresh fields and pastures new," as have several of its hexapodous fellow citizens.

Our cicada has a number of European cousins, possessing essentially the same form and structure, but they are of small size and are not distinguished by any such abnormal larval longevity as characterizes the species under consideration. They are not called "locusts" in the eastern hemisphere, that term being restricted to the various kinds of insects here commonly designated "grasshopper." They are known all over Europe and farther east as "Cicadas" or "Cicadas," the name being originally bestowed upon them by the Greeks—for they are among the very few insects honored by mention in ancient as well as modern poetry. They have no especial claim on attention except for their "music," which is of the same character as that of their American congeners.

Our indigenous cicadas include four or five species, mostly of large size and proportionately loud "song," and of these the 13-year or 17-year cicada is by far the most notable and interesting. The name "ocust" as applied to this insect, as well as the interpretation of its screeching into a prolongation of the word "Pharaoh," and the superstition that "war" or "peace" can be predicted from the veinings of the wings, all date back to early Puritan times.

From a very old work—Morton's Memorial of New England"—we learn that the first appearance of the "locusts," after the settlement of the country, occurred in Massachusetts, in 1633. We can well imagine the curiosity and wonder not unmixed with fear, with which the Pilgrim fathers, and mothers too doubtless, regarded the strange "flies," of which Morton says, "there was a numerous company, and which were for bigness like unto wasps or bumble bees."

weak, not adapted to leaping or swift running, but, being furnished with sharp claws and spines, serve admirably to cling to the small branches and twigs for which the insect has a predilection. The mouth is in the form of a haustellum or stout needle-like beak with which the small amount of sap required for nourishment is extracted.

The hind-body of the female is provided with a piercer of great strength and ingenious mechanism. It consists of three parts, the two outer, grooved on the inside and enlarged at the tips, are furnished with saw-like teeth, and between these sheaths plays a spear-pointed borer. Thus, as Harris says, "this instrument has the power and does the work both of an awl and a double-edged saw." It is with this that the female prepares the slits and grooves in tender wood in which to consign her egg—in this way often injuring young trees.

The eggs are translucent while about one-twelfth of an inch long, and are deposited in two rows in each groove to the number of from twelve to twenty, they are placed obliquely and the two rows are separated by a bunch of fine wood fibres. From six to twelve or more of these slits are often made in a single twig. The twigs which are numerously punctured usually die and break off, while those receiving few wounds recover, but never lose their scars. Almost all kinds of trees, and even grape vines and lowlier plants are punctured, but the oaks and hickories, as a rule, suffer most.

The young cicada upon hatching—in five or six weeks after the eggs are laid—drops to the ground and immediately makes its way beneath the surface in search of the tender tree-roots and feeds, for the long period of its larval life, up on the moist exudation (a sort of vegetable perspiration) from their surfaces. It often follows the roots for the depth of four or five or even eight or ten feet into the earth, never to submerge from its subterranean home until fully grown and ready for its final transformations—a period of thirteen or seventeen years, according as it belongs to a southern or northern family.

It is as a "musician" that the cicada is chiefly distinguished. Most of the species have one unvarying shrill note, but our periodical species has quite an extensive repertory, including various rattles and chirps and shrillings, but his crowing performance is the loud and long roll of his drum in giving forth the familiar "Pha-a-raah." As there are large individuals and small ones, old ones and young ones, so we hear the wearisome dissyllable in all keys and in all grades of shrillness. I have here used the masculine pronoun in no generic or generic sense, but with especial application to the male since they only are the performers. The females are silent and while their noisy partners spend their time practising their solos and choruses, they are busily employed in sawing and boring, and otherwise providing for the continuance of their kind. This fact—which applies to all cicadas—was known to the ancients, for I have somewhere seen the translation of a couplet from one of the early Greek poets which runs thus:

"Happy the cicada lives
For they all have voiceless wives."

I have not been able to find out who the poet was, but he undoubtedly belonged to the school of the "cynics."

The musical instruments of the cicada consist of a pair of kettle drums, which are plainly to be seen just behind the wings. These drums are composed of convex pieces of parchment-like membrane of a pearly white color, gathered into numerous fine plaited. They are played upon by rapid contractions and relaxations of strong cords and muscles beneath, by which the drum heads are alternately tightened and loosened, the effect being the production of a rattling sound. Certain cavities within the body, which are separated from each other by mica-like plates, tend to increase the vibrations and add to the intensity of the tone.

There is a great popular dread of the "sting" of the "locust." This is entirely unfounded, for though it is unquestionable that the beak of the insect is capable of puncturing the human skin, and might possibly be used for such a purpose upon rare occasions; yet as there is no poison gland connected with it, a simple prick could not in any case be very serious. The piercer of the female might make a painful wound, but it was not designed for a weapon of defense, and there is no authentic instance of its having been used for such a purpose. Besides the cicada is not in the least pugnacious and may be freely handled with perfect safety to the examiner.

The last previous appearance of the periodical cicada in this section of the country was in 1868, when the 13-year brood occurred simultaneously with a very extensive 17-year brood. (I leave it to those mathematically inclined to figure out when the two broods will again coincide.) At the time referred to, considerable damage was done to fruit and forest trees, and especially to nursery stock-growing contiguous to forests. Numerous and expensive experiments at that time, demonstrated the fertility of all attempts to control the insect. It could neither be driven away nor poisoned.

The very general appearance of this cicada at the date mentioned, led entomologists to give it considerable attention, and the confusion of the records, especially in the southern States, caused them to question whether its periods really coincided with those of more northern localities. By thorough research, Prof. Riley—then newly appointed State entomologist of Missouri established the fact below latitude 39 degs., the insect commonly made its appearance once in thirteen, instead of once in seventeen years; while in the intermediate States, both broods were likely to appear at their respective intervals, and rarely together. We may accordingly expect some of the 17-year brood in 1885—probably, however, in small numbers.

The only other indigenous cicada which attracts much popular attention, is the common harvest or dog-day fly (*Cicada pruinosa*). This species is much larger than the foregoing. Its form is very similar to the latter, but the color is dull green, often thickly covered with a whitish dust or "bloom." It completes its transformation within a year, and, with us, appears early in July. Its "song" is a loud, ear-splitting "whirr," very much prolonged, gradually swelling to maximum intensity, and

as gradually diminishing to a faint, slow rattle. It has no other note. Its musical apparatus is similar to that of the periodical species, but is concealed under valves behind the wings.

PROFITABLE FRUIT RAISING.

BY JOHN J. THOMAS.

A paper read before the Western New York Horticultural Society.

It has become a common opinion, especially by those who have not been successful, that orcharding for market is at best very uncertain, and the practice of recommending tree planting is not unfrequently denounced as an imposition on the public. The few instances which are reported and repeated by the press, of large profits from raising fruit, are pronounced "rare exceptions," like prizes in a lottery, and not to be expected by planters generally. A question, therefore, becomes here involved which is worthy of careful and thorough examination.

It should be borne in mind at the outset that no business can be successful that is not thoroughly understood by those who conduct it. It must grow into magnitude by long experience. The banker, for instance, would soon go under who should undertake to handle half a million of dollars with no previous knowledge of finances. The captain of a ship would be likely to send his vessel to the bottom if he knew nothing of practical navigation. But in no business is a complete previous knowledge more necessary than to the man who plants an orchard for profit. He must know enough to select, in the first place, a favorable locality; he must select the fruits that can be marketed to advantage; understand just how rich to make the land for the best result; know all about cultivating, pruning, thinning, selecting, packing, shipping and selling, and each of these may involve innumerable requisites for carrying out successfully.

In this connection it would be an interesting inquiry to ask how many millions of trees have been set for marketing by persons who knew nothing of any of those particulars, and who supposed that all they had to do was to buy the trees and set them, when they would grow, take care of themselves, and without further attention bear heavy crops of silver dollars and greenbacks.

What says Oliver Chapin, the owner of the largest apple orchard within the territory embraced by this society? He remarked to me last Summer: "It has taken me a long life-time of experience to acquire the knowledge required for success." On my visit to his orchard last Summer, I obtained from the notes of himself and of his son, Harry Chapin, accurate information on the planting of the orchard and of its crops of late years. The first trees were set out in 1851, and the planting was continued for eleven years, and their present age varies from eighteen to twenty-nine years, the majority being about twenty-two years old. There are nearly 6000 trees covering 125 acres, mostly Baldwin. They are planted thirty feet apart, and have received such good treatment that the branches of opposite rows nearly touch each other. For the first ten years the ground was cultivated without cropping; that is, it was summer-fallowed. Mr. Chapin remarked that crops might have been taken if he had had a supply of manure to meet this increased demand on the soil. But the apple trees were the chief object of care, and temporary crops a secondary consideration. The reverse, you are aware, is too often the case, the growth of the trees being made to yield to the present crop, which has cost comparatively little. Of late years Mr. Chapin's treatment has been seeding to clover, feeding it down with sheep, and plowing it under in three or four years, adding a top-dressing of manure so far as practicable. The ripening of some of the seed under the tread of the sheep continues the crop longer than by a single seeding. All danger of sheep gnawing the bark of the trees is prevented by a wash; while their droppings do not injure the orchard in the least degree. At the same time these animals give the finishing work to the cooling moth.

Under the treatment just mentioned, in 1879, a crop was sold from this orchard for some \$17,000, or \$135 per acre for the whole orchard. Smaller returns had been obtained in several previous years, as, for instance, in the scarce year of 1873 the 3000 barrels brought \$7000. In 1876, the year of plenty, the crop brought \$6000. The next two years gave small products, but the year before last, as just stated, the 10,000 barrels gave more than double the amount of any previous year. Last summer the crop was again small, and it is hoped that the coming season of higher prices will furnish another good return.

I ought not to omit some further notice of the advantage derived from the grazing of sheep, and their efficient work in destroying the codling moth. The smoothness of the fruit, and its freedom from the presence of insects, has no doubt assisted much in obtaining a good market. In an adjoining orchard, set out at the same time by a neighbor, and separated only by a fence, and where no sheep had the run of the ground, the crop was nearly spoiled by this insect. When the canker worm had obtained possession of about 2000 of the trees, and after only partial success with pine-tar bands, they were thoroughly cleared out by showering with Paris green.

The thirty-acre orchard fourteen years old belonging to J. S. Woodward, of Lockport, is kept well cleared of the codling moth by 200 sheep and forty swine. The sheep prove the most efficient, and are well fed with grain in troughs in addition to the fallen apples which they devour. In 1879 the crop of this orchard amounted to 2600 barrels, which sold for over \$5000.

The most productive apple orchard, for its size, which I saw, was in Niagara county, some miles north of Lockport, and which I was enabled to visit through the kindness of J. S. Woodward. It belongs to Peter D. Miller, occupies but eleven acres, and contains 550 trees, of fifty to the acre. It was not planted on land unsuited to anything else, such as, for instance, as untilled hillside, as some have recommended for orchards, but on the finest, deepest and richest soil which the hundred-acre farm afforded, and this had been well cultivated, and moderately manured alternate

years. The trees were set twenty-two years ago, although thirty-one feet apart many of the branches have met from opposite rows, and some have extended several feet past each other. None of the trunks were less than a foot in diameter, and I measured some that were fifteen inches. Now for the results of this treatment: In some years the fruit has sold for more than \$5000, and for the last twelve years of bearing in alternate seasons, the crops, taken together with the barrels, have brought \$32,000, or more than \$20,000 net above all expenses.

There are seven acres of the eleven planted with the Baldwin, and from these seven acres nearly all the profits came. The best portion of these, containing 140 Baldwins, when sixteen years old in 1875, and gathered separately from the rest, yielded 1230 barrels, which sold at \$25 per barrel in that year, or for \$4000 from the 140 trees.

The largest apple orchard which I saw last season, and I suppose the largest in the world, was that of Robert McKinstry, near Hudson. It contains 26,000 trees, besides 7000 of other kinds. His farm of about 300 acres is wholly planted with fruit trees. It extends for nearly a mile along the public highway and for over half a mile in the rear. Where most of it is seen from some favorable points it appears like a vast sea of orchard. Six miles of orchard road extends through the grounds, for access and for conveying away the gathered fruit. From forty to seventy men are employed in gathering, assorting, packing and drawing to Catskill Station on the Hudson River Railroad during the busy season. The largest crop was in 1878, when the orchard, at an average age of about twelve years, yielded over 20,000 barrels. Nearly all is marketed in Europe, facilities for which are fully arranged, the shipping of late summer apples being commenced in August. In one case a cable dispatch announced the sale of a consignment ten days after it went to the railway station. The sorts which are most largely planted among winter varieties are; Rhode Island Greening, Baldwin and Tompkins King, with some of Northern Spy, and Red Astrachan most largely among early

sorts.

The farm does not, of course, afford manure for dressing this vast orchard, but it is kept well cultivated, horses plowing the spaces between the rows and oxen the remaining strips between the trees, to avoid injury of whiffletrees to the bark. On the approach of winter a bank of mellow earth is thrown with the plow against the trunks to exclude mice, which, next to the borer, have proved the worst enemy to the orchard. The good cultivation given has afforded fine fruit, and specimens of the Baldwin have been obtained weighing a pound, and of Tompkins King twenty-one ounces.

The soil on which the orchard was planted is not so strong as much that we see in western New York, and the trees are placed twenty feet apart, with the intention of moving alternate and diagonal ones when they become large enough to interfere in growth. At present they have full space. The land selected was a tract having a natural drainage, among much that has not.

Mr. McKinstry has forty acres of cherry trees which are found profitable, over twenty-five tons being sold the past season; besides 2000 pear trees and smaller plantations of peaches and grapes.

I examined a few very profitable pear orchards, mostly in Genesee county. A large dwarf pear orchard, chiefly of the Duchesse, and occupying ten acres, belonging to Lorin Rathbun, was a fine specimen of successful culture. The trees are sixteen years old, and although set twelve feet apart, the outer branches nearly touch each other. A few years since this orchard bore 1200 barrels of fruit set. He has nearly an acre-part in full blast, while the rest were set only a year ago. If the season proves favorable for ripening, he will have near two thousand quarts, which is as close as I can judge.

Some Turners, or the same canes, were cut back by the cold winter. My Hoosiers here are looking well, and this season will decide between it and the Gregg.

S. MILLER.
Bluffton, Mo.

was the large crop of Bartletts just mentioned. He thinks he may have carried the enriching too far, and increased the blight by it, but there is no doubt that the high prices received, were largely owing to this enriching and good cultivation. I measured some of the Bartletts, five inches long. Mr. Morse finds the Bartlett the most profitable sort; then the Bartlett, as a dwarf; then the Buerre Bosc.

Reviewing the large and profitable examples which I have given, the remark will, of course, be suggested by some, that these are rare and exceptional cases. This is admitted; but it must be remembered, likewise, that the skillful management, which those orchards received, was equally rare and exceptional. The apple orchards had all the care which long years of experience afforded, through all the successive operations, from the selection of the ground in the first place for planting, to the final shipment of the fruit. The Dutchess pear orchards had one special advantage over other pear trees, in that this variety is so rarely affected by the blight, that it may be manured and cultivated freely, and thus the finest fruit for appearance as well as large quantities may be obtained. Cultivators may now try their skill in finding a sort equally free from blight, as fine in appearance, and better in quality.

There are occasionally examples of success and large profits, which occur only once in the lifetime of an orchard. These are strictly accidental cases, and ought not to be cited to show the profits of fruit culture. An instance occurred some years ago in Indiana, where a ten-acre peach orchard near Richmond, costing not \$400 to raise, brought in, in a single season, over \$4000 for fruit, the latest of which were going off to market when I visited it. The frost had killed the crop most everywhere else, and the fruit happened to escape there, and sold at high rates.

In closing, I had not ought to omit that remark that however important it is to select a favorable site, where large profits in marketing are expected, yet every one who owns an acre of land anywhere may well afford to plant, on a moderate scale, a general selection for family supply; and that it is by no means difficult to obtain from small and large fruit a succession for the table for nearly every day in the year, thus adding largely to the health, enjoyments and home comforts of those who live in the country.

Hoosier Mammoth Raspberry.

FRIEND COLMAN: On a recent visit to Sedalia, I saw on the grounds of Dixon Clement, perhaps the finest patch of the above fruit that there is in Missouri.

The canes came through the winter perfectly sound, and have an immense crop of fruit set. He has nearly an acre-part in full blast, while the rest were set only a year ago. If the season proves favorable for ripening, he will have near two thousand quarts, which is as close as I can judge.

Some Turners, or the same canes, were cut back by the cold winter. My Hoosiers here are looking well, and this season will decide between it and the Gregg.

S. MILLER.
Bluffton, Mo.

Horticultural Notes.

Slag from furnaces ground up with ashes is excellent material for garden walks.

Two hundred thousand young catalpas are being planted this spring in the vicinity of Betram, Mississippi county, Mo.

Prof. Riley says that kerosene oil is sure death to insects in all stages, and the only substance with which we may hope to destroy their eggs.

Probably the worst neglect that hedges suffer is that of cutting back properly when small. No hedge can be worth much without this attention. A hedge that is not thick at the bottom is no hedge at all.

When large, ornamental trees are planted on the lawn, a good way to stake them is to drive one or more short pegs into the ground at some distance from the base of the tree, and extend cords therefrom to quite a high point on the body of the tree.

A writer in the American Farmer has tried the following, worked well into the sod under pear trees to prevent blight, and so far as tried, with satisfactory results: One quart slaked lime, one quart salt, one quart bone phosphate, and one ounce of sulphur for each tree.

"There is one system of tillage," says the London Chronicle, "far too prevalent, in small gardens particularly. It is that of manuring and digging only one spade deep till a few inches of the top soil are poisoned with dung and turned into a moving mass of slugs and grubs, while the subsoil is as hard as adament."

It has been about fifty years since the tomato came into general use in this country, but the new and better varieties are of comparatively recent origin, although little improvement has been made in the last few years. It is now very extensively grown in the United States, and large quantities are used for canning purposes.

Purchased free lime, a correspondent of the Gardeners' Chronicle says, will effectively drive the worms from lawns. The lime also kills moss, which is so troublesome on old lawns, often destroying large patches of grass, and so sadly interfering with mowing. Mix the lime with twice its bulk of fine soil. Leached wood-ashes we have found better than soil for mixing with lime.

A correspondent of the Fruit Recorder says: "An experiment made last year by myself may not come amiss at this time with those who grow strawberries. I procured half a hoghead, filled it with rainwater and put into it one-quarter pound of ammonia, and one-quarter pound of common nitre. When the strawberry plants were blossoming I gave them a sprinkling of the solution at evening, twice a week, until the fruit was nearly of size. The result was double the amount of fruit on those where the liquid was applied."

One of the most formidable obstructions to the rapid growth of trees, shrubs and plants, in this climate, is drought. One of the most effective antidotes to drought is keeping the surface mellow. As summer comes on, and the heat and drought increases, mulching is the most reliable means of retaining moisture in the ground. A liberal covering, several inches in depth, and extending some distance beyond the roots, or partially decayed straw or other vegetable refuse, should be applied. Rotten leaves from the woods make

very good material for mulching. Where a farmer has an abundance he need not allow his trees or plants to suffer from any ordinary drought.

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If "Don Juan" will send his name to the RURAL, there will be a letter forwarded to him.

Michigan strawberries are coming to this market quite freely at present, and find here a more remunerative market than Chicago is. Most of the receipts are in fair order, and sell at 50 to 75 cents per gallon.

Arkansas is rapidly losing the supply of peaches she counted upon having to ship. They are dropping off the trees very fast, and the crop grows beautifully less each day. The receipts in the St. Louis market are light, perhaps seventy-five boxes per day, and are credited to Texas and Arkansas.

It is gratifying to the people of Missouri to know that the State is now paying a lower rate of interest on some of her indebtedness than any other State in the Union. Some of the State's bonds were recently placed at the extraordinary low rate of interest of 3 per cent. This is a lower rate than even the national government has been able to secure—lower than any State, county or township in the Union. It is a pretty good advertisement for the State.

General Grant was among the distinguished men at the races at Cote Brilliant for several days during our race week. He had just arrived from Mexico, and was putting in the week here, and he could not forego the pleasure the race affords. The daily papers did not dwell on the fact to any extent, nor seem to make his presence one of the great attractions of the race course, as many cities have done heretofore under similar circumstances. There was no advertisement made of it to catch the public. They simply placed his name among the notable people who were enjoying sport at the track.

The German emigration is unprecedented to this country, and thousands of settlers are now going direct to southern Missouri for homes. They are familiar with the advantages offered by this hitherto unknown land. The prejudices against Missouri they know nothing of nor care for. They come with some means, and will buy their lands and become citizens. Whole counties in Germany are being thus depopulated. The government is alarmed, and is using stringent measures to stop it, but cannot. We welcome them to our grand and glorious State. They make thrifty, enterprising, reliable residents. While hundreds, yes thousands, of American men are hesitating whether to rent farms and keep up styles and fashions or go to Missouri, these sturdy Germans step in and secure cheap, good homes.

A trip to Louisville is not so much of a task as it was thirty years ago or more. Indeed it is a recreation now to go to that beautiful city. Thirty years ago or more, we frequently traveled from Louisville to St. Louis, but it was by stage coach. Three days and three nights of continuous travel were required to go from one city to the other. Sleep was out of the question, for who can sleep sitting upright in a stage coach, jostled about as one always is over bad roads. A man felt very much as though he had been run through a threshing machine when he got to his journey's end. On our recent visit to Louisville we stepped into a Pullman palace car, on the Vandalia line, at seven in the evening, and the next morning at seven we were registered at the Galt house in that city. The Vandalia road is in excellent order, admirably managed, and all who wish to go to Louisville will consult their comfort and convenience by taking that line.

There is a large number of wealthy, well meaning gentlemen in the country who distinguish themselves by liberal donations to what they deem deserving and worthy objects and institutions. To a few of such individuals who are searching for a good place to make a deposit of this character, we would suggest the treasury of the Mississippi Valley Horticultural Society. Here is an honorable and useful body of men, laboring for the public good gratuitously, in the ennobling cause of horticulture. The society is young and needs a substantial start, that good results may ensue at an earlier day. Cincinnati, where the society holds its next meeting in September, is famous for the number of retired, wealthy merchants it has, widely known as the home of philanthropists and public benefactors, who immortalized themselves by their princely gifts to aid in elevating public taste. The cause of horticulture has been somewhat overlooked during these distributions, but it is not yet too late, and an excellent opportunity will soon present itself at the annual meeting next fall.

There is no disguising the fact that the wheat crop for 1881 will be a very short one; much lighter than is generally supposed. The Chicago Tribune gave the country, a month ago, the yield for 1881, placing the figures at 525,000,000 bushels. The writer or compiler said he estimated the crop for 1880 far in advance of all official returns, and missed it by only 5,000,000 bushels and was evidently sanguine of similar success in 1881. Had the figures been 400,000,000, time will show that they would come nearer the facts. It is conceded by men who are in a position to know most under this head, parties whose success in business depends largely on how near they can get to the facts in the case, that the crop is 25 to 40 per cent. short, with growing indications of a still further decline before the crop is harvested. The surplus, or supply for foreign markets, will in consequence be much less than it has been for the last two years, and prices will rule much higher throughout the year.

Prof. L. A. Roussel of Louisiana, an expert in sugar making, gave the RURAL WORLD office a call last week. A communication appeared from him not long since in this paper. He visited Mr. Hedges, then went to Edwardsville and visited Belcher & Schwarz' establishment, and is now on his way to Wisconsin and Minnesota. He claims to have made a great discovery in the clarification of cane juice, by which he can make pure, white sugar, without bone black filtration. He says the same process is applicable to sorghum, and he visits this section for the purpose of assisting in having his process applied in the north. He considers the use of the vacuum pan, essential to the best results. His visit has been brought about on account of the deep interest taken in this section through such agencies as the Mississippi Valley Cane Growers' Association and the RURAL WORLD. We are glad to see the sugar makers of the south taking so deep an interest in northern cane, and its manufacture into syrup and sugar.

Great Strawberry Growers and Shippers.

The leading strawberry grower and shipper in the United States is a Mr. Young, of Norfolk, Va., who is credited with 225 acres. Situated on the coast, he has a cheap route to the great markets in the east. Next to Mr. Young is Mr. Jno. D. Hammond, of Baltimore, Md., who has 140 acres bearing this season, a few miles from that city. Berry growing near the city of Baltimore has grown to gigantic proportions, the various canning establishments consuming the bulk of the crop every year. Next on the list is Dr. H. E. McKay, of Madison Station, Miss., who has 120 acres. The Doctor has proved a successful cultivator, beginning in a humble way in 1873 with one acre, from which he netted \$1,200. Dr. J. H. McKay, brother of E. H., at same place, will take next place, coming to the front with 80 acres, which he manages very successfully, besides attending to a lucrative practice of medicine. The McKays ship the bulk of their berries to the Chicago market, reaching there early enough in the season to secure good prices. Parker Earle, of Cobden, Ills., must, we believe, be awarded the next place, as he is credited with 50 to 60 acres, located at Cobden and Anna, Ills. No man has given more careful attention and study to the business the past 20 years than Mr. Earle. He is regarded a very successful fruit grower, and his crop is sold in Chicago, Milwaukee, and Canada every year.

Texas and Fruit Drummers.

Texas is hard on drummers. A fruit house of this city, sent a representative to Texas quite recently to secure some trade from that section. He pursued his avocation undisturbed for a few days until he reached Marshall. Here the jail was yawning for his body. Texas has an odious law that compels the agent or representative of any business house beyond the State to pay a yearly tax of \$200 for the privilege of doing business there. The drummer, after being arrested, protested, informing the authorities that he was neither buying nor selling goods, that he was simply imparting information to the fruit growers of the State that many of them needed and would doubtless appreciate, viz: the best market to ship their fruit to, how to pack it and prepare it for market, the best packages to use, the express rates, and similar information that would be of value to them. For this he charged them nothing. In addition to this, he was traveling through the State at an expense of \$7 to \$8 per day—railroad fare, 7 cents per mile; hotel bills, \$2 to \$4 per day, and incidental expenses equally high. In this transaction the State was largely the gainer. These arguments, however, did not appear the outraged law. He must pay the \$200, or cease holding converse with fruit growers or shippers. This puts a check to any further efforts in this direction, and no fruit commission house in St. Louis will send another representative to Texas until this absurd law is revoked.

Every merchant regulates the price of his goods according to its cost. If it costs \$200 more to sell \$2,000 worth of goods in Texas than it does to sell the merchant in the adjoining State, the purchaser must of course pay it in ad-

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dition to the cost of the goods. The merchants of Texas are then clearly paying the \$200 that is presumably imposed on the drummers, and it is impossible to defend the policy or sense of such a law in Texas or any other State.

Alfalfa Notes.

COL. COLMAN: The long continued and extremely cold winter which has affected injuriously the vitality of plants, seems to have supplied nourishing sap to the insect swarms that prey upon vegetation. The locusts, whose songs made the air of this country resonant, are, strident! in the summer of 1868, are here again in force, and their continuous song celebrating their thirteenth anniversary, becomes very monotonous, for it never ceases for a moment. The earth is honey-combed with the holes from which they emerged; their empty overcoats cover the bushes. As one rides through the woods they swarm around him with discordant noise. I asked a lad who was working a piece of newly cleared land, how he and the locusts were making it, and he replied that they were about to eat him up. Nevertheless I have never known them to eat anything green or dry. Their mission seems to be to arise and sing, to lay their eggs, and die; then the stung branches die and fall to the ground; the eggs in them hatch, and the grubs go into the earth to become the pupae which, thirteen years later, sends forth the swarms that make "locust year." We hear of army worms in some parts of the country, and of chinch bugs, Hessian flies in many places while I see neither here. The continued drought since May 5th has been fatal to a great deal of wheat, and some fields are being plowed under and late corn planted when the drought will permit plowing. The season was late and the first week of May was wet and cold, thus setting still further back the alfalfa "which loves the sun" nevertheless. I began cutting on Tuesday, May 10th; though not in bloom, it was of good height, and was relished by the mules; cut at intervals as wanted, till I cut the best of the first crop; to-day (June 2d) rather past its best condition for cutting. In the meantime sugar has come on so suddenly that red clover is ready to cut, and before the cutting of that is done with, the indications now are, that the second crop on the piece of alfalfa cut May 10th, will be ready for the mower, and the remainder follow in close order. After the publication late last winter of my articles on alfalfa, I received many letters, ranging from Indiana, Iowa, Mississippi and Texas (showing by the way the range of your circulation) asking about alfalfa; mainly about seed, price, where obtainable etc., to all of which I duly replied. A few days ago I was much amused by the receipt of a paper saying that the writer had sown alfalfa, and that it was then "coming up beautifully," and asking "how soon could begin to cut it." It seems as if he feared it might be ready to cut before he could get a reply by return mail. As others may wish to ask the same question, I will give my reply. If it grows large enough to bloom, so early as September, it will be safe to cut a crop this year, as there will be time enough after September for it to make more growth for winter protection, but recollect you are not sowing alfalfa for one year or for three or four years, but for fifty or one hundred years, and it starts slow and is tender when young, though so very rapid in growth, and abundantly hardy when once established. It will therefore go to slow at first yourself, on cutting it. In fact you can well afford to wait, for it will do so much for you each year after the first, that you can afford to lose that, if necessary, altogether. Oats and grass are doing well, and the corn that was planted early, but much corn lies now unchanged in the dry soil, waiting for rain to bring it up.

About Saplin Clover.

Some time since I. F. D. of Charleston, Ill., requested his brother farmers to give their experience in raising the mammoth or saplin clover. I have given it a fair trial, and I would not raise it for anything else than for seed. If sown with timothy, on good soil, it gets too rank, and falls down androts. Besides, it does not cure in a reasonable time, the stems are too coarse, and cattle waste too much of it. I do not think even the cattle like the green saplin clover when they can get anything else. As for a fertilizer it amounts to very little. I have tried it by sowing one-half of the field in saplin, and the other half in the common red clover. The difference was so great that I could notice it on all the crops till I had sown it in red clover again. If brother J. F. D. will sow one barrel of Michigan lan plaster on five acres of land, he will find that his red clover will remain green till the timothy is ready to cut; besides it will help the growth of the clover. Last season I learned this by experience. In a twenty-five acre field I sowed twenty acres in plaster, and on five acres I put no plaster. The clover on the five acres was dead by wheat harvest. The other twenty acres I cut for hay after harvest, and better hay I never had.—Cincinnati Enquirer.

Carbon in Wheat.

The carbon in wheat and other plants is derived not from the soil but from carbonic acid in the atmosphere, the supply of which is kept up by combustion, decay, the respiration of men and animals, etc. The amount of carbon in the atmosphere is only one part in ten thousand in air, and yet this supply is ample for the purpose of vegetation. In an English field, which has now grown wheat for thirty seven years in succession, there are some plots to which not an ounce of carbon has been returned during the whole of that period. Yet, with purely mineral manure, an average of about 1,000 lbs. of carbon is annually removed from the land; and where a given amount of nitrogenous manure is employed with the mineral manure, an average of about 1,500 lbs. per acre per annum more is obtained; in all an average of about 2,000 lbs. of carbon annually assimilated over an acre of land without any return of carbonaceous manure to it.

The Cane Mill Controversy.

Concluded from 1st page.
machinery which has given me any trouble has been that made by Squier & Bro. I never have complained of machinery made by Stedman & Co., and the Eagle Cotton Gin Co., both of which concerns I have had the agency of for over a quarter of a century. The immense number of Great Western mills, which I sold for Aiken & Drummond of Louisville, have all given perfect satisfaction; as also have the Niles and Victor mills, sold for Blymyer Manufacturing Co.

In the case decided yesterday by the Supreme Court of O. A. Pierce, vs. W. L. Cushing, et al., the original suit was brought against Cushing and G. L. Squier & Bro., of Buffalo, New York, for ten thousand dollars, damages sustained by Pierce, caused by the loss of his crop of sugar by the breakage of a Squier Steam Sugar Mill. The decision is not against Cushing, as the court below decided that Cushing was not liable, having acted only as agent, and the judgment is only against Squier & Bro.

Now, this universal failure of the Squier & Bro. machinery, while other kinds give perfect satisfaction, is very strong proof that Squier mills are very defective, and the Great Western and Victor mills, sold for Blymyer

Machinery Co., Mo.

COL. COLMAN: Seeing that there are now and then persons sending you news and not seeing this part of the country represented, I thought I would send in my note for what it is worth. Wheat is looking splendid. The prospect for a good crop never was better.

There is a large crop out in these parts, complaint of it not coming well. A good deal of it must be replanted. The corn did not have time to properly ripen last fall on account of the wet weather and early winter.

There has been considerable sorghum plant ed this spring, the farmers generally planting enough to have their own sweet—they know what they have. I think that there would be a great deal more raised if there were more mills to get it made up. Every now and then the remark is made, that they would put out more if they were sure of getting it made up. I think that an enterprising man, that thoroughly understands the art of making sorghum, could do well in putting up a mill in this locality. The Amber is the kind generally raised. I believe the yield is generally good.

L. R. MARKLEY.

Juniata, Neb.

COL. COLMAN: Dear Sir, I wish to acknowledge the receipt of the premium clock. The reason I have delayed so long, I wished to test its time keeping qualities, which are first class.

It is a perfect gem, and the question is how you can give so good a paper for one dollar, and then give such premiums as the clock and scales, both of which I have received as premiums for clubs to the RURAL WORLD. I think the RURAL WORLD the best agricultural paper published for the farmers of the Mississippi Valley and the farmers of the west. And long may it live to advocate the rights of the farmer, and educate them in their calling.

J. P. MERRY.

Boon Co., Mo.

MR. EDITOR: Mr. J. H. Jett wants to know what will kill the green cabbage worms. Tell him to take a bucket of sour buttermilk and go to his cabbage patches with a common tin cup, pour milk enough out to be sure to reach each worm, and leave them, and he will have no more trouble with them. If a new crop comes on, repeat. Don't say pooh and not try it. Try it and report.

J. P. MERRY.

CCL. COLMAN: To settle a question of importance to our farmers, will you give us the pedigree of the celebrated old horse Tom Marshall, his time, etc.

We are enduring the blighting influences of the most protracted drought ever witnessed here at so early a period of the year. Grass, wheat and oats suffering seriously. Our farmers have nearly all become anti-tobaccoists, the St. Louis market has done the business for us. It may be money to the monopolists and ringsters, but the farmers have the privilege of letting the weed severely alone.

Callaway county, Mo. JOHN P. BELL.

REMARKS. If any of our readers can give the information asked about Tom Marshall, they will oblige us by doing so.

I. A. HEDGES.

The following is the letter from Blymyer & Co.:

I. A. HEDGES, Esq.—Yours of the 5th, is noted. As heretofore stated, we are not willing to dignify such trash as a flexible cane mill, by giving its desecration any attention. You know in part, the anotomies of the attack upon the Niles and Victor, and we have the material and ability to resent with effect; but we have no time for it and can afford to lose that, especially as we do not regard attack upon the Niles and Victor, at this late date as worthy of notice, and particularly when attempted by persons so ignorant of the functions of a cane mill and so indifferent to the losses of the public, that they are willing to impose upon it. A style of mill which common sense condemns, and which has been fully demonstrated to be unfit for the services required. Yours truly,

BLYMYER MFG. CO.

CINCINNATI, May 7th, 1881.

Mr. S. A. Roussel.

Our readers will recollect a communication appeared in a late issue of the RURAL WORLD, from Mr. Roussel referring to his method of making white sugar without the use of bone black filtration in the process. We now have the pleasure of reporting an examination of his sugar and syrup presented us by him. These are of excellent quality, and the sugar could not be distinguished from Belcher's coffee A. The syrup is not only bright, but of as light a color as the best samples of sorghum without their foggy shade. These samples were made from the Louisiana cane.

Mr. Roussel has applied a bleaching process to the juice, using the fumes of burning sulphur immediately as the juice comes from the mill. For this purpose he has invented a machine for incorporating the sulphurous gas in such manner as to gain his object, after this he uses the lime to neutralize the acid to a proper degree. Mr. Roussel comes north in response to the invitation of several of our cane growers and sugar makers, who desire to employ his method of treating juice. He paid a visit to Messrs. Belcher & Schwarz, and has gone to other workers in Wisconsin and Minnesota. We are pleased to find this courteous good feeling to exist among our southern friends, which we trust will be fully reciprocated on our part. We shall endeavor to have him arrange here for the manufacturer of his machines, in order that our friends may be able to obtain them if they prove (as no doubt they will) equally useful in the sorghum juice.

I. A. HEDGES.

This is the time of year when we are in receipt of many inquiries respecting the use and value of land plaster as a fertilizer. To all these inquiries we would say, read the advertisement of A. W. Heenan on another page, and then send to him your address when you will receive in return, a well written essay on the subject, that answers all written.

Send your name and address to the Challenge Well Anger Co., of St. Louis, and receive in return, free, a descriptive book showing how, when and where, to bore for water.

Correspondence.

COL. COLMAN.

We are having a splendid

growing season, fine rain last night. Corn is growing nicely, oats and meadows are tolerably good. Wheat, I think, will be pretty good, some chinch bugs in it. Gardens good. Farmers busy and doing well. Money plenty in the country. Land is bringing good prices here.

JOHN T. A. McDANIEL.

Chariton Co., Mo.

COL. COLMAN:

Seeing that there are now

and then persons sending you news and not seeing this part of the country represented,

I thought I would send in my note for what it is worth.

Wheat is looking splendid.

The prospect for a good crop never was better.

There is a large crop out in these parts,

complaint of it not coming well.

A good deal of it must be replanted.

The corn did not have time to properly ripen last fall on account of the wet weather and early winter.

Live Stock Breeder.

Of all hog product, lard is doubtless the best property. Its uses are daily multiplying, but the stock has been notoriously short and no great additions are being made. The bulk of hogs now purchased are taken by "light hog" buyers, and do not go into lard. The light hog commands so good a price, and is ready for market so much sooner than the lard hog, that the latter is at considerable discount in the live market. This condition of things is likely to last until lard shall have reached so high a figure that it will pay raisers to wait for their hogs to grow beyond the light weight. But this advance in lard must come first.

Recent reports of American ministers and consuls from abroad, give good coloring to prospects for the sale of our hog product. Minister Kasson at Vienna reported in substance that our merchants were at fault that they had not secured inspection at warehouses and at ports, and thus obtained an official endorsement of the quality and soundness of meats, which would allay any alarm felt by European dealers; but that notwithstanding this neglect, experience there was restoring the lately shaken confidence. Noyes at Paris, said that there it was daily becoming more clearly demonstrated that accounts of trichinae had been exaggerated, and that less than one per cent. of meat had been affected, and that dealers were learning to recognize the difference between hog cholera and trichinae, which they had formerly confounded. In England the value of our meats for the poorer classes has been observed by members of parliament, and measures are in contemplation for the admission of American meats, without the unnecessary restrictions which now cripple the trade, so that the future of the hog trade is anything but dismal.

Treatment of Brood Mares.

Always avoid letting mares get at all fleshy; keep them rather below than beyond even fair driving condition, just so some four ribs' marks may be neatly seen; and any particularly desirable mares intended for breeding the current season, should be kept thus in moderate condition from about New Year's day. Avoid corn to such, feed not heavily of bran, and only moderately of oats; and if too fleshy thus, stop all of these, and feed but hay twice a day, and clean bright oats straw once, with an occasional feed of vegetables, and, say once a week, bran. At no time of the year allow a mare to get fat. Let her feed be the natural kind; by this we mean about what she would get in a state of improved nature—civilization; domesticated. Thus, grass in its season, and hay the remainder of the year; and if decidedly not inclined to take on flesh, moderately feed oats; but as there is a widely-spread belief that white clover is antagonistic to the requirements, avoid it. Red clover should be avoided for this and other reasons: it conduces to too much fatness, is bloating, causes colic, and these are against the mare's producing foal, and may cost her life, as it has others. Another great and good reason why mares, before being served, should be kept rather lean, is her natural tendency to take on fat soon after becoming pregnant, and this is an early indication that the desideratum has been attained—very conveniently satisfactory—relatively so; and also, in going up hill in condition, she will not be so likely, nearly, to get in foal as the opposite. Nature seems to provide that when a female is low in condition, her own remedy is at hand in permitting pregnancy, which brings good condition. Never let your mares come near blood or fresh meat, or any similar circumstance.

Should any animal, mare or cow, miscarry, or abort, remove her at once from nearness to all other animals and all traces of misfortune, and use deodorizers promptly on the spot. Avoid any sudden or severe backward movement to any and every mare. This is fatal to foal-carrying. We have frequently known mares to abort because of being abruptly made to jump backward in stall, etc. Immediately after your mare has been served by the horse, and thenceforward, have everything surrounding her made quiet, and all circumstances tending toward the passive state, absence of excitement or exciting causes. Remove her from where she can possibly hear or smell the stallion, and though she should not be made lonely, have her so no animal, even mare or gelding, can smell of her or come very near to her. Do not the same day, if it may be avoided, use her so she can come in contact with other horses; and above all be sure to only very moderately, slowly exercise her, and don't hitch her where there may be any possibility of other horses coming to her. This precaution is quite important in breeding mares. Let them not have much company in pasture.

Pardon us, if in our necessary haste with desire to tell all that is material, we may reverse the correct order of proceedings in several particulars. It has been said, we are not fully aware on how good authority, that all mares, if not at the time sucking a foal, should be "opened" before being served by the horse. If a careful experienced (in this particular) man may be had therefore, and a small hand and a sensitive, delicate touch, the rule may not be unwise to follow; but we should be cautious under any circumstances, yet more especially if the mare had not repeatedly failed to become pregnant. Where this is the case, and the mare has not in spring and early summer season, been very fat even, and she has failed to stand to the service of the horse, we might recommend such to be opened surely. Our experience has been that mares easily kept fat, and those that have been

kept in large towns and fed year after year, perhaps at boarding stables, highly on grains, are the two classes that give the most trouble to get in foal. There is abroad, and widely believed, a maxim, that the feeding of oil meal to a stallion will cause him to become impotent. If this be true, then it should always be avoided, as well to mares and fillies intended to be devoted sometime to breeding. At commencement of the season, when not aware that your mare is in heat, try her (only for a few moments, as above) daily, till she is found right. When you may have used your mare (already served no matter how long before, and hoped to be in foal) rather too hard, maybe, on unharvesting her let her loose that she may roll, which, more than any other thing, will keep her young, and prevent her slipping foal from over exertion, etc.; so when any accident has happened in stable, let her out to roll and enjoy herself naturally, the greatest and finest recreation a horse can have; and when she will return to quarters give her some oats to "change the current of her thoughts." All these little attentions are very valuable, you may rely. An old breeder who has had many mares producing for years, says he had much trouble from mares aborting until he stopped breeding mares early; that now he has them served not till mid-spring and early summer, and has little trouble; but it will take more of a scientific man than the writer to note any connection between the cause assigned and the effect apparent. But hints like some of these it will not be amiss to act upon—such as are national. —Wallace's Monthly.

Unshod Horses.

Unshod horses enjoy almost a total immunity from diseases of the feet and legs. Side-bones, sanderack, seedy toe, ringbone, thrush and quittor were never seen in the writer's stables. Spavins, curbs, splints, and windgalls were very rare. Thrush is effectively cured by removing the shoe from any horse that suffers from it. Professor Coleman said that "the frog must have pressure, or become diseased," and Mr. Douglas says that "contraction prevents a supply of blood from reaching the sensitive frog that produces the insensitive frog; and so, becoming useless for the purpose nature intended it, instead of coming to horn, it oozes out a noxious-smelling fluid." The unshod horse has frog-pressure; so, unless he should stand upon rotten litter, thrush he can not get.

Quittor is caused by pricking with a nail, or by the horse resting with the toe of one foot, and bearing with the heel of the shoe of that foot (especially should the shoe be calked) upon the coronet of the opposite one. Hence, unshod horses can with difficulty get quittor; neither do they. An unshod horse "feels his feet," and knows what he is doing with them; so he scarcely knows what it is to overreach himself, and even if he does such a thing, no evil consequences are ever noticed, because the horn can not inflict injury like iron.

For sanderack and seedy toe there are no names in the above-mentioned countries—Mexico, Yucatan, Venezuela, Peru, Brazil and others, and no one can bring the natives to understand that such diseases exist. If you suggest corns to them, they laugh in your face; and no wonder.—Horses and Roads;

Ranch and Range.

Trail notes from the Fort Worth Texas Live Stock Journal:

About 25,000 head have passed Fort Griffin to this time going north.

Capt. J. D. Reed has started his herd of 3,000 young steers for Kansas.

Schreiner & Lytle will drive 15,000 head of cattle to Kansas this season.

Mr. Lumberger, from southern Texas, has passed north with 2,000 cattle.

J. S. Smith, of Llano county passed through with 2,100 head en route to Kansas.

Nat. Word, of Goliad, passed through town on Monday with 300 head of horses.

Mesars. King & Rachal, respectively, have about 2,500 head hoofing northward.

T. J. Word, of Goliad, has nearly 7,000 head of cattle on the trail en route to Kansas.

William Hunter delivered to Hunter, Evans & Co. last week 2,400 select young steers which are now on the trail for ranching in Kansas.

Mr. J. W. Schew, of Coleman county, arrived in the city Monday morning with sixty head of cattle, which we learn will be driven to the north.

William Hunter finished yesterday delivering 1,400 head of ones and twos to Mr. Frank Clutton, who puts them on the road for his ranch in New Mexico.

John Flint returned last Sunday from Eastern Texas, where he has just finished putting up 600 young cattle for Mr. Jesse Boyd, who takes them to Caldwell, Kansas.

Driving stock horses in going on to a considerable extent from Burnet county; very near all the larger stock left over from last year are sold, and are driven to the Territories, mostly Nebraska and Wyoming.

The great herds of the cattle ranges of western Texas are driven northward through Indian Territory and Kansas, whence they are distributed to the points where they are in demand, and care is taken to collect statistics of these droves. The Quill, a paper published in Castroville, Texas, recently gave what is declared to be the corrected figures of the "drives" of 1881. The tabular statement gives the names of the owners and the number of cattle driven by each individual and firm. The total is 231,480 head, which number, the Quill says, does not include 100,000 head driven from the Panhandle. These figures do not represent the total annual cattle product of Texas, as many are slaughtered at home, and many are stolen and driven into Mexico, though the number stolen has of late not been very large. The largest drive in the Quill's list is that of Lytle & Schreiner, 20,000 head. The next in importance is that of D. H. & J. W. Snyder, 12,000 head. There were four drives of 10,000 head each, one of 9,000, one of 8,000, five of 7,000, four of 6,000, three of 5,000, and 5,000, and twenty-four of smaller herds. The figures given by the Quill represent a cash value at the average price at San Antonio, of \$2,648,000 which is a pretty goodly sum for only a part of the annual cattle product of Texas.

Live Stock Journal, Fort Worth:—Bob Bright sold his entire stock of cattle in Tom Green county, to Messrs. Peacock & McWilliams. W. C. Irvin has sold his stock of about 5,000 head to Messrs. Hughes and Simpson at \$12 per head, calves not included. Mr. T. M. Peeler has sold his stock of about

500 head of cattle to Hughes & Simpson, at \$12 per head, calves not counted. Jno. Dawson, of this city, recently purchased the entire stock of M. P. Johnson, of Jones county, paying therefore the sum of \$33,000. Mr. J. D. Farmer, of Callahan county, has sold his entire stock of cattle to Messrs. Keer & Cochran, who still hold them in Callahan. T. P. Lenoir, of Goliad county, has sold recently 999 head of cattle to Butler & Nichols, of Karnes county, consisting of one and two year old. Price \$7 and \$10. J. D. Huston has sold to Jesse Hittson 2,500 two-year-old steers at \$13 per head, to be delivered June 25th, on the Arkansas river, fifty miles west of Fort Dodge, Kansas. Winfield Scott returned from his ranch in Tom Green yesterday, and informs us that the rounding-up business is progressing smoothly and satisfactorily, and that the ranchmen in that section will soon have the bulk of their cattle collected on their accustomed ranges, they not being as badly scattered as was anticipated in the earlier part of the season. Wm. Hunter will deliver to-day 300 head of choice ones and twos to W. A. Daugherty of Missouri; and also has ready for delivery to Warren & Simpson 1,000 head of steers and heifers, we presume for ranching. Beef cattle are now being contracted over western Texas for future delivery at from \$20 to \$23 per head, and from present indications we believe that choice lots of full grown cattle that will do for the early market will exceed these figures.

Raising Beef.—James Fisher, of Harrison Co., O., says: "It is as easy to have steers ready for market at two years old, by giving them the proper attention, as it is to let them run and be half kept, and not marketed until three or four years old. What stock you keep make it your aim to keep them in the best manner. Keep no more than you can keep growing all the time. There is never any trouble in fat stock always finding a buyer. Make it a rule to feed high and plenty. It should be your constant aim to see how soon you can bring your cattle into market. And in carrying out this plan always give your calves a good start, and keep them up right along."

The Dairy.**Dairy Notes.**

As the success of dairying depends almost wholly upon the skill with which milk is handled before and during its manufacture and as some of the processes require considerable manual skill to attain the best results it is being urged that it would be a good thing to establish co-operative dairy schools of some sort in the dairy districts of the country. Such schools are maintained by the government in Germany, Sweden, France, England and Russia.

Diarrhea is caused by irritative matter in the bowels. This is not removed by astringents, and to give them only increases the trouble. A laxative is needed to remove the offended matter, which is usually some undigested food. Give a pint of linseed-oil, which is better at this season than salts, and repeat it, if necessary, in three days. Give an ounce of ginger with the oil, and when the oil has operated give a drachm of ginger and a drachm of carbuncle of soda daily in the food for a few days.

The history of a sow raised on the farm of the late Erastus Ellsworth, East Windsor Hill, is so remarkable that it is worthy of record in these columns. The sow is about three fourths Durham and the other fourth is of no particular breed. On April 10, 1877, she gave birth to twins, one male and one female; March 19, 1878, she gave birth to triplets, two males and one female; making five calves in eleven months and three days. On July 9, 1879, she gave birth to twins, both males; October 7, 1880, she gave birth to triplets, two males and one female; making ten calves in three years, five months and twenty-one days. The calves have all been of good size, healthy, perfect in form, and have been raised on the farm.

George M. Baker, president of the Massachusetts Milk Producers' Association, stated at the Boston meeting, held last week, speaking of the surplus supply of milk, that two things contributed to make the supply overabundant; one is that everybody has gone to raising milk, and another is that the contractors inflate milk. He thought that it was the province of the producers to fix the price of milk for a period of six months, and thus a surer way could be adopted to prevent the fluctuation in prices. The producers are obliged to raise a certain surplus quantity of milk, but if they, instead of the contractors, manufactured this surplus quantity into butter and cheese, they would reap the benefit instead of the contractors.

The Elgin, Ill., Board of Trade have been looking up, through a committee appointed for that purpose, the butter butter manufacturers in Chicago. In their report recently published they say that they have round in Chicago six or seven factories which are turning out 25,000 or 30,000 pounds of land-butter daily. The stuff is made of lard, soapstone and a little butter, with other things mixed in to make it look and taste like butter, and is then disposed of as dairy or creamery butter, and at nearly the same price as the genuine article. Most of this is shipped east and south. It is best for the eastern markets to patronize our eastern dairies; they can produce more butter than they have ever done, and of a superior quality to that now comes to market.

Some of the advantages of the co-operative factory system of butter-making are thus enumerated by Henry E. Alward, of Easthampton: (1) The expense of manufacturing the butter, including maintenance of implements and apparatus, as well as labor, is much less in proportion when conducted at one place and for large quantities, than for small lots at a hundred different places; (2) the advantage in disposing of the product in large quantities and by an expert agent, whose special duty is to watch the markets and secure the highest price; (3) the keeping of the skim-milk on the farm where only the cream is sold to the factory, the great relief to the farmer's wife of having the milk or cream taken off the farm, saving all further labor and care; (4) the tendency of the product to the market is unquestionable to very greatly raise the average quality of the product from the same cow. There are other practical advantages.

CLOVER SEED IN AUTUMN.—A Pennsylvania farmer who has tried it, recommends that when the spring sowing of clover seed does not "catch," owing to drought or other causes, that sowing clover seed upon the stubble in August, or early in September, will generally repair the damage, either with or without harrowing in, although harrowing is the most reliable practice. The cost of the seed is but a trifling sum, compared with changing the proper rotation of crops established upon every well regulated farm.

The Shepherd.

Edited by R. M. Bell, of Brighton, Macon Co., Ill., to whom all matter relating to this department should be addressed.

Early Lambing in Mississippi.

Your experience, detailed in the RURAL WORLD of May 10th, seems to have convinced you that it is anything but profitable. But one experience is not sufficient to establish a fact, especially when made under conditions in the highest degree unfavorable. The unprecedented weather of last season has shaken the faith of many in early lambs. Then, in your case, the sheep were evidently out of condition from being so long confined to dry feed.

Now, as to the first difficulty, the cold. That can be met by having the sheds closed tight on the north, west and east sides—open only to the south, so that the sun can shine all through. Nothing like sunlight for the health and thrift of anything.

Then, in feeding, a portion of oilcake should be used in lieu of so much dry stuff. My belief is, that if you had far less corn and substantial cotton seed meal, you would not have been annoyed with milkless dams. At all events, try once more with a dozen ewes, if no more, and see if the early lambs are not the finest.

What we call early lambs have come in January and early in February. These are ready to nip the first grass as it comes out in March, and they grow right along, making stronger lambs and better sheep than those coming in March, and if wanted for the butcher, command higher prices. The ewes will also breed at one year, just as well as two years old.

A word about making sheep own their lambs. It was a long time before I had enough sheep sense to know how to do it. I never fail now. Put the ewe in a cage of convenient size for herself and lamb. Tie her head in one end. If she has milk and the lamb is vigorous, nothing further is to be done, except to feed the ewe. The lamb will take care of itself, and will soon be owned. Sometimes a rope has to be passed under the ewe's belly to keep her from lying down at first. If a good ewe with plenty of milk has a lamb I make her take another from a ewe with twins; if two or three weeks old, no difference. The "boob" way of rubbing the new lamb with the dead one is foolishness.

Marietta, Miss.

REMARKS.—The article referred to was by mistake credited to me, and I am very much mortified about it as will be seen elsewhere. It was written by Stephen Powers for the Ohio Farmer. It was so true to life in lambing time by hundreds of the best sheep handlers in this latitude that I desired to lay it before our readers, and hence our esteemed correspondent from Mississippi directs criticisms to me. I had, however, about the same experience as Mr. Powers, and we come out with the same decisions for the future breeding of our ewes. Early lambs are the best, if you don't have to lose too many to have them.

R. M. BELL.

The Best Breed of Sheep.

COL. COLMAN: Permit me, through the Sheep Department of your valuable paper, to answer the above question. Just at present, when there is such a boom in the sheep business and many utterly inexperienced are embarking in it, this question is repeatedly asked, what breed of sheep is the best?

The first point to consider is, what is meant by "the best?" Unquestionably we mean that breed out of which we can make the most money. It is habitually the case that every breeder, whenever this question is raised, without second thought and without second thought, champions his favorite breed, and stoutly sets forth its superior merits. I was once of this blind number myself; but recent and more careful consideration of the question has opened my eyes to its breadth. Notwithstanding the fact that I am a Merino man by birth, education and present choice, and hope to have in the not distant future the best flock of Merinos in the world, I am confident of being able to discuss this question candidly.

As all who were present at our late convention at Sedalia will remember, a very interesting discussion of this question occurred there. The occasion of that discussion was an essay by my good friend Mr. Jewett, on "The relative importance of wool and mutton." The subject is of far greater reach than Mr. Jewett gave it. In the first place the relative importance of wool and mutton must be decided in every case by one's surroundings; and by surroundings I mean the age and population of the country.

You can produce far more value in the shape of mutton on a given acreage than you can in the shape of wool; but it costs much more to get the mutton to market. These two points are the key to the whole matter. The first question, Mr. Sheep Grower, then is, where are you? Are you far west or south, where the lands are very cheap and unentered, and where no large market is near? Then, by all means, wool should be your chief, or even sole consideration. Are you back east where farms are small, land high and a dense population all around you? Then mutton is by far the largest item. Are you neither in the extreme west nor extreme east? Then a middle course should be pursued, and wool and mutton both be considered. However, one's surroundings are changing, one

To Wool Shippers and Growers:

C. KRATH & CO.,

WOOL & GENERAL COMMISSION MERCHANTS

222 MARKET STREET, ST. LOUIS.

Sale days the same as last season—MONDAYS, WEDNESDAYS, FRIDAYS—thereby giving parties shipping small lots the advantage of the larger sales, which, in all cases, brings a higher price. We sell on bids, having agents here from Eastern mills, and also all our Western Wool speculators, to bid on the wool.

The Home Circle.

A Trip to Aurora Springs, Miller Co., Missouri.

The same, as well as the water of Aurora Springs, having reached our vicinity, we resolved, the spring work was pretty well under way, that a visit to them must be undertaken, and see for ourselves whether the reports from them were correct. We, in this connection, means the party whose lieutenant the writer has been for so long these forty years, and a daughter, like the mother, with no experience in camp life.

We had resolved to be independent, and not go in the way of gentiles, unless their quarters were clean and roomy. We borrowed from a neighbor a Kansas wagon with roomy box and cover, which had traveled the road so often that it almost knew the way back and forth to his "wife's people."

All things being nearly ready for a forward movement, the madam showed a want of confidence in the ability of her "sub" for so important a trip. He was permitted to resign, and a neighbor who had carried a musket over Lookout Mountains and Raccoon Ridge, and had been under Milfray in West Virginia, was offered the command. He accepted, and on the morning of the 27th of May we started in a gentle shower, which stopped and was followed by bright sunshine. We soon came to a bridge of considerable height, at the foot of the hill. The madam seeing the lay of the ground, demanded a consultation. There was danger if our team should balk, and back down the hill that our prairie craft would miss the bridge, and become a wreck. But the commander thought that the danger lay in getting up the hill, and not in backing down. So he ordered a double-quick move, and old Dolly (the pet of children and grandchildren) and her son soon had us on top, and on we went with increased courage.

We soon passed into Morgan county, traveling southward, leaving the village of Excelsior one mile to the right. Thence to the substantial church house and beautiful and well kept cemetery of Hopewell, which speaks well of the Christianity, public spirit and taste of that neighborhood. We regret very much that their school-house has been burned; feel certain, though, that it will soon be rebuilt by that enterprising community. Here we came up to a carriage and covered wagon, and learned that they, like ourselves, were making for the springs. Among them was an invalid, an acquaintance of former years. We joined company and continued our pilgrimage, fanned by a pleasant breeze and through a beautiful prairie country. At noon we halted at Barnettsville on the track of the notable cyclone of April, 1880. Its desolation is partly covered by new houses, fences and a luxuriant vegetation, but enough is left to tell how dire was its power and sad its mission to many hearts.

Here the madam, for the first time, boiled the coffee by a brush fire, and spread her camp fare before us; the commander giving able counsel and service. The meal over, we were soon under way, intending to reach the springs before night. Were surprised to find the roads and country better than we expected, and no Philistine to annoy us.

Keeping the road to Tuscumbia on the Osage, to within one mile of the springs, we turned short to the east down a wooded valley, where we found the object of our search. Here we found quite a number of persons drinking and filling jugs and barrels with the precious water. We must confess that our first impression of the springs was not favorable. The vision of a tan vat presented itself. The well, or receptacle for the water, is an oblong square of rock, with its walls encrusted with a yellowish deposit, which looks like oak oozes at a distance, but on nearer examination we found it was confined to the walls. The water being very clear.

Finding lodgings limited, the Madame concluded we would lodge in the wagon. We moved to an open lot and soon made preparation for the evening meal; that being over, we arranged for the night's lodging. The seats, kegs and loose articles were taken out, and the hay spread evenly for our beds with covers on top. The commander, sleeping on the spring seat with a sheepskin under a gum blanket over him, occupied the post of danger outside. We confess to a liking for goose feathers, and there was not much ease for our rheumatic and tired limbs that night.

And perhaps it was this and a little sourness from the loss of my life-long office that caused me to criticise some defects in the commissary department. We found a whetstone where there should have been bread, a surplus of forks and a dearth of spoons, a vial of the essence of asafetida in the place of pickles or vinegar. But we spoke in subdued tones lest we might find more of the acid than wanted.

After Saturday's breakfast we started out with all the inquisitiveness we could employ, and soon tired down, walking over new-cleared roads and lots. We borrowed a side and a man's saddle, and took a more extended view of the surrounding country, which is

well timbered and elevated above the several little streams which form the head of the Saline, and seems until very lately to have been but little disturbed by the woodman's ax or wagon roads. On the north the timber blends with the prairie, and forms numbers of beautiful grassy groves of sumac, sassafras and persimmon. Then comes large body of good and well-tilled land, dotted with substantial houses and tasteful surroundings. Among many varieties of timber we found an old acquaintance, the water beach or iron wood, whose tough and tapering boughs were able adjuncts to education and good morals in my young days.

The springs, as there are several, are north of a rocky bluff, on which are growing beautiful ferns and small trees. Above these the hill rises to a considerable elevation, and the timber being larger, affords a fine view and admitting plenty of air. All of the buildings are yet unfinished and rude; the winter, spring and location prevented it being otherwise. Hardly shelter sufficient for the hardy toilers, who are perhaps laying the foundation of another Eureka. Several hundred lots have been sold and hundreds more offered. Lots, labor and prices generally are reasonable. The only corner yet formed is on jugs. Accommodations in a few weeks will be enlarged. Mr. Jas. Moon has a hotel of considerable size in progress, and other parties are also hurrying up houses for the accommodation of visitors. To the farmers of the surrounding country, at present visitors must look for board, or come prepared to camp, for which the country is well adapted. Capital is much needed.

As to the location, the road from California on the Missouri Pacific R. R. via High Point to Tuscumbia on the Osage passes near-twenty miles from the first, and eleven miles from the last named place. A road leads from Jefferson City, thirty miles distant, via Russellville and Pleasant Mt., the course being southwest. A journey of twenty miles east from Versailles, or thirty southeast from Tipton will reach them. A daily mail can be had by going four miles to Pleasant Mt., Miller county. Many vouchers for the efficacy of the water, can be had on diseases of skin, kidney, liver and sore eyes. Our stay being short, we can only voice for its almost instantaneous softening effect on horny hands and tough skins, the experience of all who try it.

Near night we hurried through supper just in time to see our commander desert his post of danger and beat a hasty retreat with his sheepskin and gum blanket on his back. The rain came down in streams, at least through our cover which had gotten into folds and gutters, but soon our umbrella was raised and we were comparatively safe.

But the oak leaves we had gathered to fill the space made by using hay were considerably dampened. The shower being over, we retired as best we could and escaped any serious results from our damp quarters. The Sabbath sun being bright, we prepared early to see an expected crowd and attend religious services, which had been announced for the day.

In brushing our clothes with our kerchiefs, the Miss found a remarkable oversight had been committed, she had forgotten a looking-glass.

We had some leisure to look around before the crowd, numbering five or six hundred, collected, including many acquaintances. Many bring kegs, jugs and lunches with them. A better looking, more orderly and intelligent crowd one seldom sees. Vices of crowded cities and watering places have not got here.

At 11 o'clock we repaired to the place where prayers were wont to be said, and by the side of the stream amid the lofty trees, listened to an able discourse from Rev. Mr. Leach of Sedalia.

The audience was restless—being only partly seated—but respectful.

We will add that one saw-mill is in operation and others expected. Mr. Johnson is the editor of the "Aurora" which is printed there. A house even of the plainest kind is needed.

Monday morning early, we were out for home. While the health of the morning was being asked, the Miss acknowledged to some feebleness, but thought the butter was strong enough to get home.

Our kegs and barrels being filled, we parted with regret from many new made friends and acquaintances and scenes of two short days to be remembered among the pleasant ones of our life.

J. G. T.
Latham's Store, Moniteau Co., Mo.

Letter from Bon Ami.

The last RURAL comes cheerful enough. Paulus is friendly and lively. Vindex is in good spirits, and does not seem to cherish ill will toward anyone. Our dear friend Daisy, if she will allow the expression, is very sensible in her remarks on the civil and divine question. Girls are very poor debaters, but you are an exception to the rule, Daisy.

Gipsy Countess, 'tis strange we should not have noticed you when you visited the Circle first. I do not remember to have seen an article from you; but now I hope you will be with us often, and we all shall try to atone for neglecting merit.

Little Mite and Peter are so frank, I cannot help but like them. Fifty-Seven's Dream is so much like a novel that I can't read it. It must be good, though, for Fifty-Seven never writes anything bad. I have read so many bad stories lately that I am now prejudiced against anything I see in the papers that has the appearance of a story. There are just a few good novels as good poems. I believe most people by long practice could learn to say something new or something old in a new or attractive way, if they should confine themselves to simple narration. But 'tis not all that have a place on Parnassus, or that can gain laurels as novelists.

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It was three years ago when I saw the first RURAL. Mutato Nomine and I were attending school at the "Athens" of Missouri. He let me see the RURAL, which contained a communication on "Novel Reading" by S. P. J., and told me he intended to answer the article, and that he had been for some time a contributor. He also asked me to join the Home Circle, and suggested "Bon Ami" as a suitable name. I was anxious to become a member, for I was sure I could spend many an hour pleasantly and profitably. But I had some fears, which I never expressed, about the "waste basket." I had an idea that editors were severely critical, and that no communication would be admitted to their columns that did not bear the closest scrutiny. So, without knowledge of Mutato, I wrote an article, and sent it to our good editor, determining that if it went to the waste basket, none but the editor and myself should ever know it.

My surprise was great when I received a card from the editor, stating that my communication had been accepted, and that he should be glad to receive more articles from me. My first article was about marriage, for I was then really thinking more about the subject than about taking a degree. I regarded my debut as so successful, that afterwards I always consulted with my friend when writing on any subject. In talking over our subjects, we generally had our articles complete before a line had been written. That is a good way to compose an article. I don't think anybody can write and think well at the same time. One cannot do mechanical work and mental work at the same moment. It would be a good idea for all, especially the young, to know what they intend to say before attempting to say it. If one writes while he is thinking, and if he thinks fast, his hand-writing will be as bad as that of Horace Greeley or Thos. Carlyle. Take a letter of one who writes a very neat hand. It looks well to be sure, but the beauty is altogether mechanical. The letter, if published, would not appear half so well as that of many another one who does not write so neatly. The hand-writing of almost every literary man in history will illustrate the truth of this remark. The more thinking a man does while writing, the less elegant will be his chirography.

BON AMI.

P. S.—Why does Paulus ask Lloyd Guyot about Ixion? Can he detect a likeness between the two styles? I, too, suspect our friend could throw a good deal of light on the subject if he would.

B. A.

Letter from Miss Ted.

My silence for the past month may be attributed to the influence of Eureka water. I have always been inclined to be lazy, and I found Eureka Springs the very Utopia of idlers. I am sorry to say that I saw no member of the Home Circle.

As I had six different opinions of Eureka on as many days, I shall not attempt to describe it. I should probably fail to do the subject justice in any particular, and my inconsistency would shock admirers of the Springs. I will, with much pleasure, state that grandma was greatly benefited during our short visit.

Thanks, Lloyd Guyot, for your kind wishes. Indeed, I did not forget you, though I was too—though I felt disinclined to write. I was quite homesick for the RURAL, and read the numbers, which came while we were away, as soon as possible after coming home.

You are right, Nina, in saying that the practice of whipping offenders against the laws is "barbarous and inhuman." I must apologize to you for my exhibition of undue curiosity. I always find your letters interesting, and sincerely admire the womanly qualities of which they prove you to be possessed. Thus I was led to make a request which should have impressed me at the time as being improper. I shall not indulge myself by asking Col. Coleman for your initials.

Lina M., it is with great pleasure I welcome you to the Home Circle. I have entertained from childhood a profound regard for the noble State in which you live, the State which has furnished our country so many brave and wise men and women. How Hawthorne must have loved it! Though he said America was too new to furnish the best material for the romancer, he wrote a matchless romance. The noble poet from whose works you quote, is as well beloved by us as by the people of his own Cambridge. Few poets have the gift of touching human hearts as he has touched them. He is the poet of the people in truer sense than any other American poet. He is read more than Whittier, and better appreciated than Bryant. I cannot tell you about the writers of whom you wish information in a manner which would do them justice. When you have read letters from these, you will be able to give them such appreciation as they deserve.

Vindex, neither am I aware of having ever met you, though I have visited Fourchea Renault. The printer made me talk unintelligibly on the subject of acquaintance. I am pleased that your allusion to George Eliot was not meant to be irreverent. The people who decry this noble woman are frequently actuated by other motives than regret for her moral lapse. It is just, it is inevitable, that those who love her best, who appreciate her most highly, must feel a passionate sorrow that genius so great, womanhood so generous, should die under the sentence of God's law. No one can read Adam Bede, and believe that George Eliot did not yearn for the highest good for a world for whose sorrows her compassion was infinite. Have you read the poem, entitled "George Eliot," in the May number of Harper's?

Paulus, I wish to thank you for not calling Mr. Robert G. Ingerson, "Bob." Mr. Ingerson is a man, and however much we may be opposed to his teachings, we should recognize his manhood.

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Letter from Don Ami.

Now that the criticisms are all in, I will preface my letter with an illustration: When the drunken man stumbles into the circus ring, the audience cry, "Put him out!" And when he offers to bet the ring-master five dollars that he can ride as good as "the other fellers," the ring-master laughs, and the crowd jeers and snickers. When he mounts the prancing steed, and begins to haul off his clothes, the audience become silent and puzzled. And, finally, when the supposed drunken man rides around the ring, divested of his rags, the peer of any rider in the land, the audience breaks forth in uncontrollable applause.

Don Juan has been a reader of COLMAN'S RURAL WORLD for many years, and has been particularly interested in the Home Circle department, though never writing for it until recently. At thirteen years of age, Don Juan went into a printing office, to learn the art preservative, and after seven years at the case, graduated to the position of city editor, which place he now holds on a daily paper. If there is any place in the world where character can be studied, and the different phases and characteristics of man and womankind learned, that place is in a newspaper office. Here the deceptions, the varieties, the frivolities, the hypocrisy and the egotism of human nature are laid bare, and the editor knows that much that is labelled gold, is the poorest kind of white-washed pewter. He mingles with all classes of people; deals with the rich and poor, high and low, outcast and criminal, the good and the bad; and his faith in human goodness becomes terribly shaken as he punctures the hollow shams of modern society.

The editor learns to distinguish writers by their style, and can read character just as well by a person's writing as a phrenologist can read character by examining your head—nay, better.

In reading letters in the Home Circle week after week, Don Juan found that while some writers were natural, others affected on erudite, selfish, vain, egotistical, cynical style, and he determined to read them a lesson. So he tumbled into the Home Circle, very much like the drunken man tumbles into the circus ring, and Blanche, Tray and Sweetheart showed their teeth at once; and Don Juan laughed and laughed at the way they pounced onto him.

The RURAL WORLD, of June 2d, contains a letter from Bon Ami, and also one from Lloyd Guyot; both are interesting, but I do not understand Guyot's allusion to the "methodical foolishness" of Don Juan's former letters.

Bon Ami's advice to Orphan Boy is good, and I wish to supplement it with this advice to all writers, whether young or old: Be natural, write just as you would converse. "Our best writers are free and lazy writers. Our best orators, those who hold and electrify an audience, are always natural, and do not speak from printed or written sheets. In vulgar parlance, "do not bite of more than you can chew." Nothing is so tiresome as to read a strained effusion, written by some one who aims at profundity. The works of some of the best authors remain unread, because of their stiffness and unnaturalness. To succeed you must be natural. Do not imitate others. Have a style of your own. Give your writings individuality. Do not be afraid to write just as you feel. Be brave. Be strong. Be earnest. Assert your opinions freely, and don't say a thing is so because somebody else says so, or thinks so. Like Davy Crockett, be sure you are right, and then pitch in.

It is impossible for writers, on daily papers, especially news writers, to be careful or profound, but they must be natural. The hurried work on daily papers admits of no careful preparation, and reporters and city editors must

by a proper respect for his dignity. The odious habit of familiarity with the names of public men has grown to intolerable pretensions. The spirit of democratic institutions is a life-long process. The "I am as good as you" mania which rules Americans, leaves little to be expected in the way of humble submission to superior intelligence. I cannot accept your description of Americans as being conducive, I suspect you only wished to provoke an antagonism and shall leave your annihilations to some German who will crush you with the ponderous logic of "the Fatherland." I like your remarks on Byron. The is the poem, "To a Mountain Dairy," among those pieces of Burns' which you call gems of poetry?

The eminent service Bon Ami has rendered the Circle, in disabusing our minds of the belief that Homer was a poet and not an ape, should be acknowledged. The delusion which Mr. Culver Bryant cherished in regard to this ancient Orang-outang is quite remarkable, and is convincing proof that poets are betrayed into egregious follies by the poetical bias of their temperaments. It is not strange that Pope should have fallen into like error, for being an insufferable poet himself, he could not detect the vast inferiority of the mutterings of this Hellenian ape to the spring poetry of his own day. The newness of Bon Ami's subject is the least of its excellencies.

Most of us have, at one time or another, been incensed because the printer took privileges with our composition. I wish to make reparation. All that is correct in my letters may be credited to the printer; all that is incorrect, may be attributed to my ignorance and the printer's oversight. Though I once studied grammar, it was in my youth. It did not possess great terrors for me then, and I suppose the placid agent with which I encountered this difficulty was the result of my ignorance.

MISS TED.

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The Culture of Fine White Tobacco In Missouri.

In our circular of 1st February last, on this subject, you find in some detail an account of our laborious and expensive efforts to introduce into Missouri the growth of White Burley Tobacco. We are now glad to announce that, as far as the enterprise has gone, we have attained decided success; having distributed 200 lbs. (or about five bushels) of seed; and, in a thorough canvass of the tobacco section of the State we thought best adapted to it, succeeded in stimulating a deep interest in this favorite tobacco, and inquiry into its culture, care and preparation for market.

We are gratified to learn that a very large area for plants has been sown, and so far as advised, we do not hear of a single failure in germination; and though the sowing was generally much later than usual, plants are forward and promising.

Having these gratifying results to report from our efforts to encourage the growth of white tobacco in Missouri, we shall devote this paper and our future efforts to securing a fine and profitable growth of it. Nothing we can say or do to secure this end will be considered too earnest or extravagant, if we can but arouse and maintain as much interest and zeal in planters to raise a fine and acceptable crop to manufacturers, as they now manifest to raise a large one.

The report of the Commissioner of Agriculture for 1878 says: "The production of poor tobacco is the controlling cause of the unhappy condition in which the tobacco planters of the United States now find themselves. The production of good tobacco, of whatever kind, has never been too large. It is the production of poor tobacco that has caused the mischief. The over-production of low-grade tobacco will always result in low prices for the entire commodity. Planters have the remedy in their own hands, that remedy being the proper selection of soil, and increased attention to cultivation and cure. In a word, one acre must be made to yield what it has hitherto taken two or three to produce, and this quantity must be made immeasurably superior in quality to that grown on the greater number of acres. The whole world wants good tobacco and will pay for it. Scarcely any people on earth want poor tobacco, or will pay for it at any price."

We differ with the Commissioners' Report in the statement "that the tobacco planters of the United States find themselves in an unhappy condition," and the general inference that raising poor tobacco is the rule in this country. If it has been far too prevalent, which we admit, it is not the rule, for we see large sections of the country the Virginia and North Carolina fine wrapper and fine filler, as well as fine export-growing regions, eastern and Ohio seed leaf regions, and Kentucky and Ohio White Burley regions, and many localities through the entire export-growing, or western tobacco regions, devoted to and succeeding eminently in the cultivation of fine tobacco of their respective kinds; and there are no farming communities in this country so well off and so successful in and proud of their special staple crops as these.

But we agree with the Commissioner, that the growing of poor tobacco of any kind is a poor and foolish investment; and it is even worse than this, it is almost a crime. It subjects the planter that does it to disappointment at his own ill success, and to envy and injury of his successful neighbor. Merely growing White Burley tobacco will not do.

To grow it without the qualities that give it merit and demand with manufacturers, white tobacco is no better than any other poor tobacco. In fact, without these qualities, it is the very poorest tobacco known. If the chemical botanist is asked what we want from the soil to grow pure White Burley tobacco, he would say, chiefly and indispensably, you want lime, potash and soluble silica. Ask the intelligent dealer or manufacturer what he wants in pure White Burley, and he says, I want a leaf of fine texture, feeling soft and fleshy to the touch; small fibre, great elasticity and porosity, and a high phosphoric color, with a flavor and odor not to be described in any other terms so well as by calling it a White Burley taste and smell, which distinguish it from all other varieties of tobacco. To account for these distinguishing qualities and characteristics in white tobacco, we would have to consider its absorbing and containing capacity for lime and potash, which it takes from the soil, and the vegetable and fruit acids and sweets it inhales from the air and drinks from the rains and dews.

To grow this peculiar tobacco and secure in it the elements we describe, a well-adapted soil is indispensable. And in our paper of February last we described, in general terms, lands to be selected for this year's crops. These lands are abundant in Missouri; and as planting is near at hand, and we desire to redeem our pledge to treat more fully the subject of soil to be selected, planting and early culture, leaving for future treatment in other papers later culture, cure and marketing, we again advise that you select a limestone soil, with a southern or southeastern exposure, of new, wood land, if possible, and not prairie, by any means. Prepare your ground thoroughly, but not too deep, whether it be old or new land, as deep culture tends to grow coarse tobacco. If your lands are first or second year it is hardly likely you need manure; and yet lime, ashes, or stable manure, well rotted, might be used on second year land to profit. If your lands are fallow, or sod, we take it for granted you broke them in the fall. On either, if possible, put a good coating of stable manure, well rotted straw-mold, or barn-yard scraping, or woods-mold. Wood ashes or lime may be added, and every planter will know their value, and judge best of the spots that need them most. From an extensive canvass of the old tobacco region of Missouri, we are satisfied such lands as we describe may be selected in large portions of the following counties, canvassed by us: Monroe, Howard, Randolph, Chariton, Carroll, Fayette, Jackson, Ray, Clay, Clinton, Livingston, Linn, Macon and Shelby. And we doubt not the northern portion of the State is equally as well adapted to white tobacco, as the counties named, as we have seen fine samples from Knox, Sullivan and Holt counties. This canvass was later extended into southwest Missouri and northwest Arkansas, and we conclude that the whole of that extensive region is adapted, in soil and climate, to the culture and cure of this tobacco, in its highest perfection. Phelps, Pulaski, Laclede, Webster, Green, Lawrence, Jasper, Newton, McDonald and Barry counties, Missouri, and Benton and Washington counties, Arkansas, show a conformation, a soil, and an herbage and timber growth that indicate all that can be desired in a white tobacco country. A few crops and purchases seen in Newton county, Missouri, and Benton county, Arkansas, could hardly be surpassed in quality.

As curious and useful information, bearing on planting, we give the following information. In a round way, a table-spoonful and a half of tobacco seed is one-half an ounce, and contains 150,000 seed; three spoonfuls, or twenty No. 10 thimblesful, is an ounce, and contains 300,000 seed. Allowing that every third seed would give a plant. An ounce of

seed would plant in checks, 20 acres, 8x3 feet. An ounce of seed would plant in checks, 27½ acres 3½x1 feet. An ounce of seed would plant in checks, 27½ acres 3x4 feet. An ounce of seed would plant in drills, 14 acres, 4x1½ feet. An ounce of seed would plant in drills, 18½ acres 4x2 feet. An ounce of seed would plant in drills, 15½ acres 4x1 8½ feet.

In order to secure fine texture of leaf, and small fibre, we would advise shallow breaking of your land, not to exceed 6 to 8 inches, and planting in drills, especially on strong lands. A fine, delicate growth, without rendering the leaf smaller, may be secured this way. But so much is this to be desired that we would be glad to see an experienced planter try, in a small way, cutting the tap-root of the plant, so as to arrest a rank growth. This, we think, would not diminish the surface size of the leaf, and would make it finer. The time to try this experiment would be just before the plant came to topping. We have but one authority with us, that we know of, on shallow breaking and shallow tillage to grow fine tobacco, but this authority was both an experienced planter and manufacturer, and all the principles of fine plant culture vindicate it.

While drilling gives you a finer leaf, or lighter body, and brighter color, all so much to be desired, it also gives you many more pounds per acre than planting in check, by giving you so many more plants per acre, as you see from the following table:

20 7-10 feet square, or 43,560 square feet, make an acre.

In check, an acre planted 3x3 feet, gives 4,840 plants. In check, an acre planted 3½x3½ feet, gives 3,630 plants. In check, an acre planted 3x4 feet, gives 3,630 plants. In drills, an acre planted 4x2 feet, gives 4,445 plants. In drills, an acre planted 4x1 8½ feet, gives 6,534 plants. In drills, an acre planted 4x1½ feet, gives 7,260 plants.

We advise planting in drills, 4 feet by 1 foot 8 inches, as best distance. If plants are thrifty, top at 16 to 18 leaves, and prime by taking off two to four leaves, if you prime at all. Many prefer not to prime at all, but we think it best to prime as above.

When the crop is in growth we hope to issue our views upon later culture, ripening, cutting, housing, curing, etc.

J. N. Croucher, Manager.

Rescued from Death.

The following statement of William J. Coughlin, of Somerville, Mass., is so remarkable that we beg to ask for it the attention of our readers. He says: In the fall of 1876 I was taken with a violent bleeding of the lungs followed by a severe cough. I soon began to lose my appetite and flesh. I was so weak at one time that I could not leave my bed. In the summer of 1877 I was admitted to the City Hospital. While there, the doctors said I had a hole in my left lung as big as a half dollar. I expended over a hundred dollars in doctors and medicines. I was so far gone at one time a report went around I was dead. I gave up hope, but a friend told me of DR. WM. HALL'S BALSAM FOR THE LUNGS. I laughed at my friends, thinking that my case was incurable, but I got a bottle to satisfy them, when to my surprise and gratification I commenced to feel better. My hope, once dead, began to revive, and to day I feel in better spirits than I have had the past three years.

I write this hoping you will publish it, so that every one afflicted with Diseased Lungs will be induced to take DR. WM. HALL'S BALSAM FOR THE LUNGS, and be convinced that CONSUMPTION CAN BE CURED. I have taken two bottles and can positively say that it had done more good than all the other medicines I have taken since my sickness. My cough has almost entirely disappeared and I shall soon be able to go to work." Sold by druggists.

Of Interest to Fruit Growers.

Oft and again we hear complaints from fruit and vegetable growers, that the money they receive from the commission men, on the sale of their goods, is in amount far from what was expected and in many cases so small as not to pay for the labor of gathering and shipping. It is owing to these continued complaints that a new venture has been made in our city of which we are pleased to note. It appears that the extra expense attending the sales of fruits and vegetables arise in a great measure from the custom of commission men having to pay large sums of money to the middlemen, who goes out soliciting consignments; and as these sums have to be made out of the sales on the shipments, the returns to the growers are necessarily small. With a view of remedying this evil, the incorporated company of F. M. Zuck Commission Co., of St. Louis, have this season dispensed with the services of these agents and hence are able to sell all consignments to them at a charge of seven per cent, instead of the usual ten per cent commission; where-by their business has doubly increased, and their patrons are assured continued favors, which demonstrates the good judgment of this company, of whom it may be said there is no better, or any, that can give more satisfactory references.

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J. P. WATSON, Pastor Christian Church, Troy, O.

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